

FLIGHT

& AIRCRAFT ENGINEER.

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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EDITORIAL COMMENT



RITING last week on the subject of the future of the R.A.F., we mentioned that rumour associated the name of Mr. Winston Churchill with the dual appointment of Secretary of State for War and the Air. We declined then to

believe that the Premier could make the capital error of combining the two offices, for reasons which we stated. Unfortunately, we were

An Astounding Appointment

wrong, and the prophets who foretold the intention were right, since the list of Cabinet appointments discloses that Mr. Churchill has, in fact, been given both appointments, General Seely being cast for the rôle of Under-Secretary for the Air and to preside over the Air Ministry. We confess we are utterly at a loss to understand what lies behind it all, unless it be true that the forces of reaction have captured the Prime Minister, and the intention exists to subordinate the R.A.F. once more to War Office control. From no other point of view is it possible to reach a con-

clusion as to why this astounding duality of office has been created. Unless we are going to let our aerial defences take care of themselves—which ought to be unthinkable—the Air Ministry will for several years to come require the undivided attention of an able statesman, whose efforts must be untrammelled by any association with another office of any kind, and must in particular be entirely free from the influence of a reactionary department like the War Office, which, unable to properly develop our aerial resources by itself, is still so far willing to act the part of the dog-in-the-manger as to refuse to allow anyone else to do so.

It is useful to glance back at the events which preceded the creation of the separate Air Service, which so abundantly justified its existence in the closing year of the War, and to seek for the reasons why it is vital, from the point of view of national defence, to keep matters as they are so far as organisation is concerned. First of all, preparedness for war does not consist altogether in the mere possession of a sufficiently strong expeditionary force, with its adequate reserves and the material to supply it for a limited space of time. Of far greater importance is it, when we have to visualise a great war which may last for years, that the organisation should exist to enable us to pass smoothly and with the minimum of delay from a state of peace to that of war—of speedily converting man-power and industry from peaceful occupation to warlike purposes. It was solely because Germany had studied the problems connected with this aspect of war and had provided for every contingency that could be foreseen by human thought that she came so near to winning the War in the first few weeks of the great struggle. We, on the other hand, had not apparently given a thought to the real possibility of our becoming involved in a great European struggle that would tax our resources to the uttermost, and it was only when we were actually committed—and had nearly lost the War—that we set to work in real earnest on the conversion of the country from a peaceful population to a nation in arms. Nor were we able to accomplish the change without intense friction and at an appalling cost in money. We need look no farther than the Air Services for the moral. There were two separate and distinct Air Services, or, rather, the nuclei of two Services. These had to be immediately

expanded out of all proportion to anything that had been foreseen, with the inevitable consequence that there was intense competition between the two, each bidding hard against the other in the market for the best machines, fighting one against the other for the best *personnel*, with a consequent waste of time, money and resources that was nothing short of tragic. The air forces in France were badly organised, and nothing but the superlative gallantry of the *personnel* enabled us to hold our own against the enemy's Air Service. The Air Service was nothing more than a side-show to the Army command, which obviously was concerned with many other matters, and had to divide its attention with these. True, it was recognised as a very important side-show, as all the despatches indicate, but it nevertheless had to work out its own salvation somehow under the handicap of what may be described as sub-departmental administration and the disabilities of the competition to which we have referred already. One of the results of that competition was that at one time the Navy possessed the only machines that were really capable of holding their own with the best of the German aircraft, and the Army command was driven to borrow naval squadrons to carry out work over the enemy's lines as far south as the battlefields of the Somme. Now, it is certainly a sound argument that if the Navy required these machines at all it needed them for its own purposes, and they had no business at all on the Somme. Alternatively, if the Navy did not so require them, they ought to have been in the possession of the R.F.C. But, whichever way we regard it, the principle of naval squadrons taking part in purely military operations was, in the circumstances, entirely wrong.

The Creation of the R.A.F.

The disabilities under which our aerial forces laboured were fully recognised, but a large amount of mere tinkering was done before the only possible solution of the difficulties was adopted by the creation of the R.A.F. The hide-bound officers and officials of the Admiralty and the War Office apparently failed to realise that the trouble was fundamental and not to be overcome save in the one way. Therefore, they fought to the last against the separation of the aerial arm from their own administrative control, and we thus had the spectacle of continuous revision and reorganisation of the Air Board, which effected little or nothing. Then, almost as a counsel of despair, they were brought to acquiesce in the creation of a real Air Ministry and a separate Air Force. From that moment we began to forge ahead. All the needs of the Army were supplied, both as to machines and *personnel*. The Navy got all it wanted, not only in seaplanes and flying boats, but in airships. Over and above that, the Independent Air Force was constituted on such a basis that we were able to take the air war into Germany literally with both hands, and by the end of the war we had established an almost overwhelming superiority over the enemy's air service. It is the organisation which gave us that superiority that the reactionary elements are, apparently, trying to scrap, and, truth to tell, it begins to look as though a very strenuous fight will have to be made to prevent the design from succeeding.

It is perfectly certain that we are on the eve of a tremendous development in commercial aviation, which of necessity connotes the possession by every Great Power of very large numbers of aircraft. It is true that the machine designed for war is not the best type for commercial purposes, but it is equally true that the one designed to carry a large number of passengers or a heavy weight of mails or goods is quite capable of carrying a corresponding weight of bombs. It is perfectly clear also that a very few hours' notice would be sufficient for Germany, for example, to assemble a large force of aeroplanes and to carry out a devastating raid on London or Paris without the formality of a declaration of war. It is all very well to take the point of view that the nations of Europe are sick of war, and will have no more of it, but we shall be much wiser if we boldly face the fact that aerial developments have made it possible for any European Great Power within a very few years to suddenly renew the war in the air by making use of the fleets that have been created ostensibly for peaceful purposes. Moreover, the secrecy with which a formidable aerial blow can be prepared makes it a vital matter that we should regard the possibility as a real one to be prepared for on a sufficient scale. We shall require a very perfect intelligence system to give timely warning of such an intention as we have premised. We shall need, too, an equally efficient organisation for rapidly mobilising our aircraft at the threat in order to defeat the attempt or anticipate the actual hostile act by a timely attack. The nature of the threat from the air is almost exactly on a parity with the danger of the sea attack, and as the Navy is perpetually at war, so must the Air Service be equally ready for the defensive or the defensive-offensive. It certainly cannot be that as a mere department of either the Navy or the Army. The direction must be in the hands of absolutely competent men, who must be given the same discretion and political support as the Board of Admiralty or the Army Council. There is nothing at all in these premises which conflicts with the principle that in time of actual war the needs of the armies in the field and of the fleets at sea, so far as aircraft are concerned, must be a first charge on our resources. Nor is there anything in conflict with the established principle, which has been rigidly adhered to, that aircraft working with either service must come under naval or military command. The main thing is that the possibilities of future war in the air are so enormous that it is simply to invite trouble to allow our aerial defence measures to revert to the hand-to-mouth system under which they struggled before the war and during the first three years of the conflict.

We have said nothing of the necessity of a strong Air Ministry in view of the future of commercial aviation. That can be taken as read, and we prefer at the moment to take our stand on the defensive necessities of the future. It may be perfectly true that the whole world is sick of slaughter now, but we do not believe the late war has brought us to Utopia. Human nature is the same as it was in 1914. Politicians, soldiers and statesmen still have the same outlook and the same ideals, however much they may protest a change of heart, and to be weak or lax is as sure an invitation to attack as ever it was. Therefore, we repeat once more our words of last week: Hands off the Royal Air Force!



Major-General Sir GODFREY M. PAINE, K.C.B., M.V.O., Inspector-General of the Royal Air Force

What is Wrong with the W.R.A.F.?

We have several times during the past few months conceived it to be our duty to pass severe criticisms on the administration and working of the Women's Royal Air Force. One of the results of those criticisms was that in certain directions an effort was certainly made to improve matters, and, we are assured, with some little success. But to judge from the stories that are being told in the Press and from letters which reach us direct from members of the Force, it is quite evident that there is something fundamentally wrong, and it would seem that a searching judicial enquiry is needed to bring the trouble to light and ensure justice being done all round. It seems to be fairly clear that the trouble originates somewhere near the top. The statements made by the Hon. Violet Douglas-Pennant certainly point that way, and it seems to us that it is absolutely necessary in the interests of those concerned in her allegations, as well as that of the public, that they should be tested before an independent tribunal. In her statement published in several daily newspapers, she says she was asked in May last to take over the post of Commandant of the W.R.A.F., and actually assumed command in the following month. Her difficulties began early, for she says: "Immediately I started on my duties as commandant I was brought up against a particular officer, who told me he had promised five ladies high posts, and asked me to recommend them to the Air Ministry for these positions. I had nothing whatever personally against these ladies, but I could not honestly recommend them for those important duties. I pointed out the difficulties, and suggested that I should put them in positions where they would receive the training necessary for the work. Lord Weir and Sir Godfrey Paine agreed with my views, and the ladies were told that they were either to take the junior posts or the Air Ministry would not require their services." These five ladies, however, refused to take the junior posts, and Miss Douglas-Pennant states that from that time she became the subject of the most bitter attacks. Shortly afterwards, she tendered her resignation, which was declined, but some four or five days later she was, so she states, summarily dismissed on the ground that she was unpopular. An enquiry was held by Mr. Cecil Harmsworth, who is said to have told Miss Douglas-Pennant verbally and in writing that he was recommending the Prime Minister to make a full judicial enquiry. Later, it was stated that the results of Mr. Harmsworth's enquiry could not be made public because there was to be another, but so far nothing seems to have been done. Miss Douglas-Pennant says, and we entirely sympathise with her point of view, whatever the rights and wrongs of the case may ultimately prove to be, that she has been practically cashiered and now rests under the stigma of the gravest misconduct. "I am," she says, "urging and pressing for a full enquiry, for it is manifestly and grossly unjust that people with a long and good service career can be shot out at a moment's notice, and I maintain that no-one should be dismissed on the ground of unpopularity."

Taking the statements as they stand—and they have not so far been answered or controverted in any way—there seems to be the fullest subject-matter for a further enquiry. Who is the officer who promised good jobs to ladies who, the ex-commandant alleges,

she found unfit to fill them, and what are his reasons or excuses for so promising? It is a pity that Miss Douglas-Pennant has not taken the risk of a libel action and made his name public. Had she done so, she might have got the enquiry she wants in the Court of King's Bench, if the officer concerned had the temerity to bring an action. Then, why the sudden *volte face* alleged to have been performed by Lord Weir and Sir Godfrey Paine, who first of all refused to entertain Miss Douglas-Pennant's resignation of her post, and then, a few days later, seem to have collaborated in her dismissal? Again, why has no notice been taken of Mr. Cecil Harmsworth's recommendation that the questions at issue should form the subject of a judicial enquiry? These are only a few of the questions that will have to be answered before the affair can be held to be closed. If only a part of the stories we have heard of the administration of the W.R.A.F. are near the truth, it is small wonder that a commandant who knew her business and intended to carry it out without fear or favour should have become unpopular at the outset. We know quite enough of it to be aware that some of the administrative anomalies would make fit subjects for the plot of a comic opera, but the pity is that it has all involved a shocking waste of public money. Nepotism has been rife in some directions, while in others real hardship has been inflicted upon women who either did not know the ropes for themselves or who had no one to pull strings for them. For those who either had influence or who could "wangle" things, the W.R.A.F. service has been by way of a rest cure, but for others it has been quite otherwise. An enquiry will certainly have to be held into the statements made by Miss Douglas-Pennant, and it will be more than desirable that the terms of reference of the commission should be extended to take in the whole administration of the Force. If it is, we shrewdly suspect that there will be more wicks than O.B.E.s handed out to those who have been most actively concerned in the mal-administration. Allowing for all the difficulties of creating and carrying on such a Force during the War, our considered opinion is that the W.R.A.F. has been quite the worst run of the women's war organisations.

The Possibilities of the Airship

The general unsuccess of the Zeppelin as an engine of attack in war, and the intense secrecy in which the development of the airship in our own Service has been wrapped during the period of the War, has rather tended to obscure the merits of the lighter-than-air craft. For it most certainly does possess distinctive merits of its own. In his address given in the City last week, General Sykes referred, we believe, for the first time officially, to the voyage made by a Zeppelin from Jamboli, in Bulgaria, to German East Africa and back. As a matter of fact, we knew at the time that this flight had been made, but the censorship naturally prohibited all reference to it. General Sykes' announcement, therefore, came as no surprise to us, but we imagine it must have set a good many people thinking very hard. The distance this airship covered in the course of its journey was not less than 7,000 miles, and may have been a good deal more, while the time occupied was about one hundred hours. Now, the official record for an airship flight is no more than 506 miles, though there is one of 745 miles awaiting recognition. Both

of these are mere circumstances to the performance of the East African Zeppelin. The latter must compel very close attention to the future of the airship as a commercial proposition, and it is thus opportune to call attention to the series of articles by Major Nixon, R.A.F., the first one of which we publish in this issue of "FLIGHT." The writer of this series knows what he is talking about when he speaks of lighter-than-air craft, and we believe that his articles will prove of singular interest and use to the industry and to the development of commercial aviation. It has been very much the tendency of late to ignore the airship as a factor in the future of commercial development and to concentrate the whole attention on the aeroplane. This, in the light of the lessons of the War, we conceive to be altogether wrong. We do not believe that the whole future is bound up solely in either type. Each has obvious limitations peculiar to itself, while on the other hand each possesses certain cardinal advantages not shared by the other. Therefore, it follows almost as a matter of course that each will have its own sphere of usefulness in future development along collateral lines. We have learnt much more about the possibilities of the airship during the War—in spite of the little that has been heard about it, and that not always to its advantage—and now that the time has come when there is no longer reason to regard all the information as confidential, we believe that a great deal of advantage, with some surprise, will follow the figures and statistics we trust to be able to place before our readers.

Why the Hold-up?

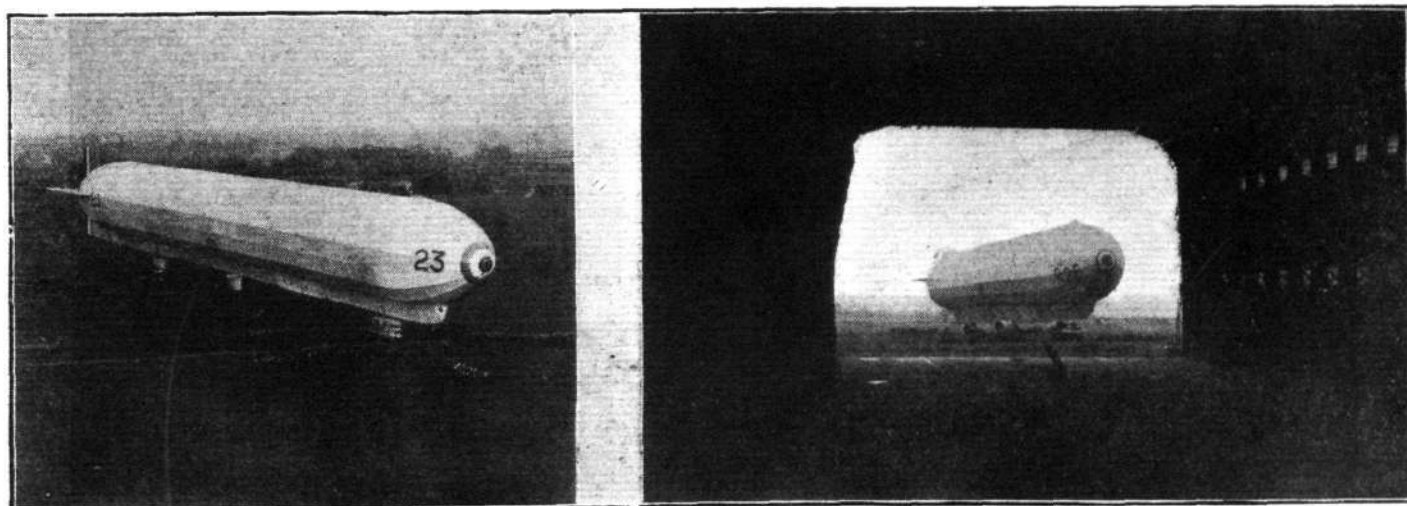
We are perfectly well aware that it is impossible to effect the transition from war to peace conditions in an instant, and that it is no more feasible to wipe out all the restrictions peculiar to a state of war by a mere stroke of the pen. At the same time, we seriously think that our Government is showing a deplorable want of appreciation of the needs of the moment by keeping on far more of the restrictions than is necessary. Not only so, but it is manifesting a callous disregard

of the future by the attitude it adopts towards the industrial and commercial elements upon whom the country most depends for its future prosperity. If the same conditions of uncertainty obtained in the case of other countries, there would possibly be little room for criticism, but that is not so, and we are confronted now with the position that others are getting back apace to their pre-war activities, and it is apparently only the British commercial man and manufacturer who is being left in a state of uncertainty. For example, it is said that Egypt is anxious to place orders for machinery with this country to the amount of £4,500,000, but the trouble is that early delivery is wanted, and owing to the persistent refusal of the Government to remove restrictions on raw materials or even to say when they will be removed, the British firms concerned are unable to specify even an approximate date. In the meantime French, Italian and camouflaged Swiss engineering firms are hot-foot after the orders, and it is quite possible that the needed machinery may in the end be supplied by Germany, through a Swiss medium! The same applies to the South American trade. Again, in aviation we are informed by a prominent firm of constructors that some time ago they asked the Air Ministry if they might negotiate with foreign Governments for the sale of machines. The Air Ministry referred them to the Ministry of Munitions, but the latter alleged it was no business of theirs, and referred the firm back to the Air Ministry. A further letter, giving the story of the transaction, elicited the required permission. Later, the Ministry was asked if certain engines might be sent out, but no reply was vouchsafed. In the meantime, Italy is sending our Caproni machines to the Argentine, and has invited Argentine pilots to come to Italy for training. Apparently, the British aircraft industry is to be left out of the world's trade because the Government in the stress of the task of Cabinet-making and making fulsome promises of social reform to be carried out in the remote future, is unable to make up its mind on questions of vital immediate consequence.

New Chief of American Air Service

MAJOR-GEN. CHARLES T. MENOHER has been appointed Director of the American Air Service, and will take over the duties formerly carried out by Mr. John D. Ryan. Col. James A. Mars has been appointed Acting Director of Aircraft

Production succeeding Mr. William C. Potter. General Menoher was in command of the 42nd Division in France, and had been assigned to the command of the 6th Army Corps. Col. Mars has been in command of several aviation centres.



OUR AIRSHIP FLEET.—"R. 23" outside its shed, and, on the right, "R. 26" entering its shed, as seen from inside the hangar.

AIRSHIP TRANSPORT

BY MAJOR S. NIXON, R.A.F.

BEFORE considering the question of aerial transport, it is interesting and instructive to review the progress made by steam propulsion installed in surface craft.

In 1825 the first P.O. steamboat made the passage to India. Eight years later the *Royal William* crossed the Atlantic in twenty-two days. Steady progress has been made until the present time, when such ocean leviathans as the *Mauretania* cross from England to America in under five days.

In 1914, 45 per cent. of the tonnage of the world sailed under the British flag, earning about £50,000,000 sterling annually.

Rapid transport is an essential factor of commercial activity, and there would appear to be little doubt that the country which adopts the more progressive aerial policy will be most likely to achieve commercial supremacy in years to come.

Various opinions have been expressed as to the comparative merits of H/A craft and L/A craft, but a dividing line as to the utility of both types appears to be: Aeroplanes for land work, and airships for work over sea, in a similar way that railways convey the traffic on land and ocean vessels on sea. At the same time it is thought that the seaplane will have distinct value for distances up to, say, 500 to 1,000 miles.

From the foregoing it will be observed that it has taken the greater part of a century to arrive at the present standard of ocean travel, whereas it has been possible in the space of ten years to perfect and produce an airship with a radius of action of 8,000 miles at a speed of 45 to 50 miles an hour.

It is thought that airship lines will follow in a somewhat similar manner to the ocean traffic routes with a chain of coaling stations in the form of airship bases.

Airship Bases

Eastern Hemisphere	Western Hemisphere
England	Halifax, Canada
Marseilles, France	New York
Port Said } Egypt	Pernambuco }
Aden }	Rio de Janeiro } Brazil

Eastern Hemisphere

Bombay	} India
Colombo	
Singapore, Malay	
Hong Kong, China	
Perth	
Port Darwin	} Australia
Sydney	
Wellington, New Zealand	

Western Hemisphere

Buenos Ayres, Argentina.
Vancouver, Canada

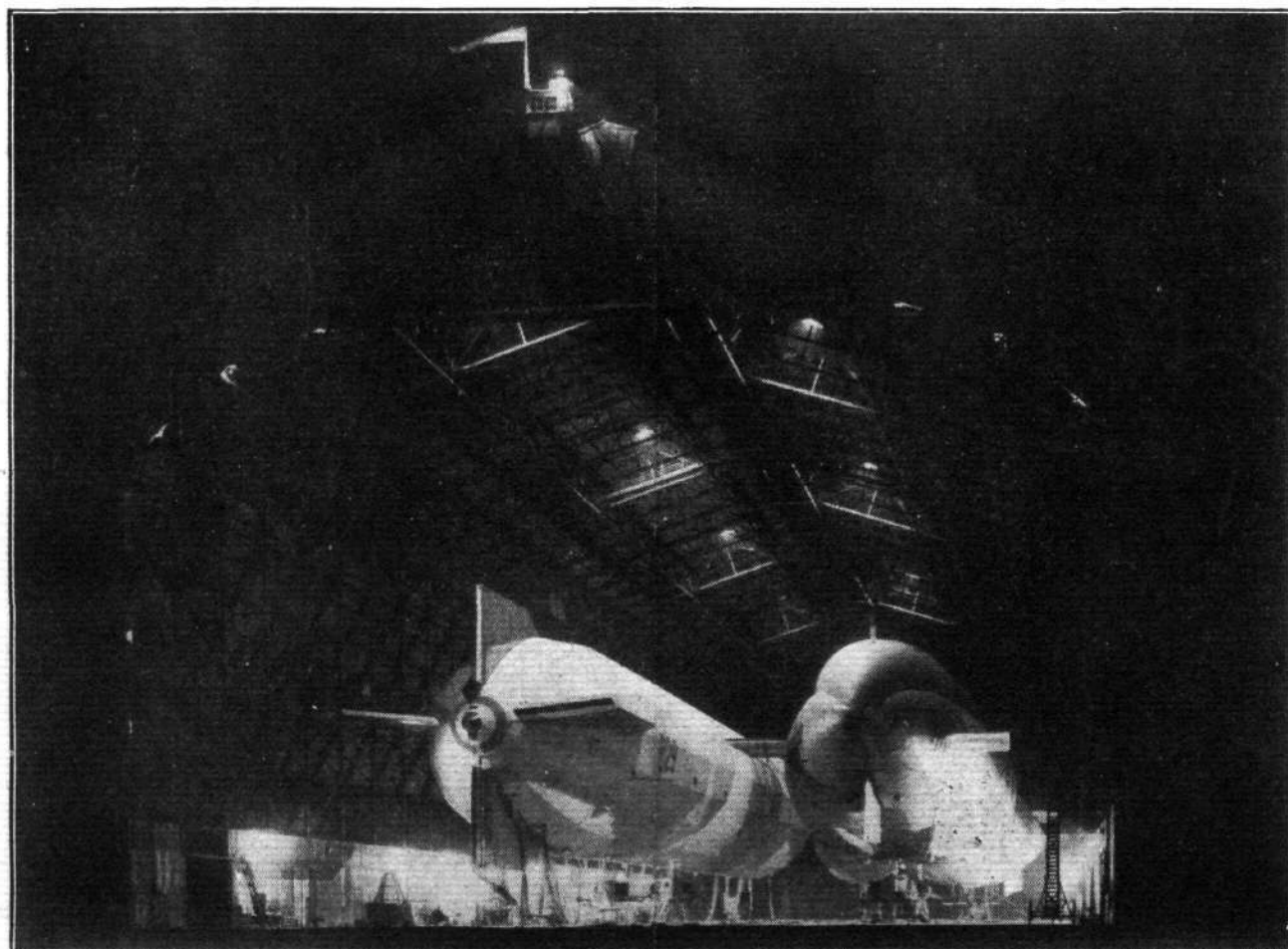
Airship Routes

1. British Isles to America.
2. British Isles to Egypt, India and Australia.
3. British Isles to South America.
4. British Isles to Africa.
5. British Isles to China and Japan.
6. British Isles to Scandinavia.

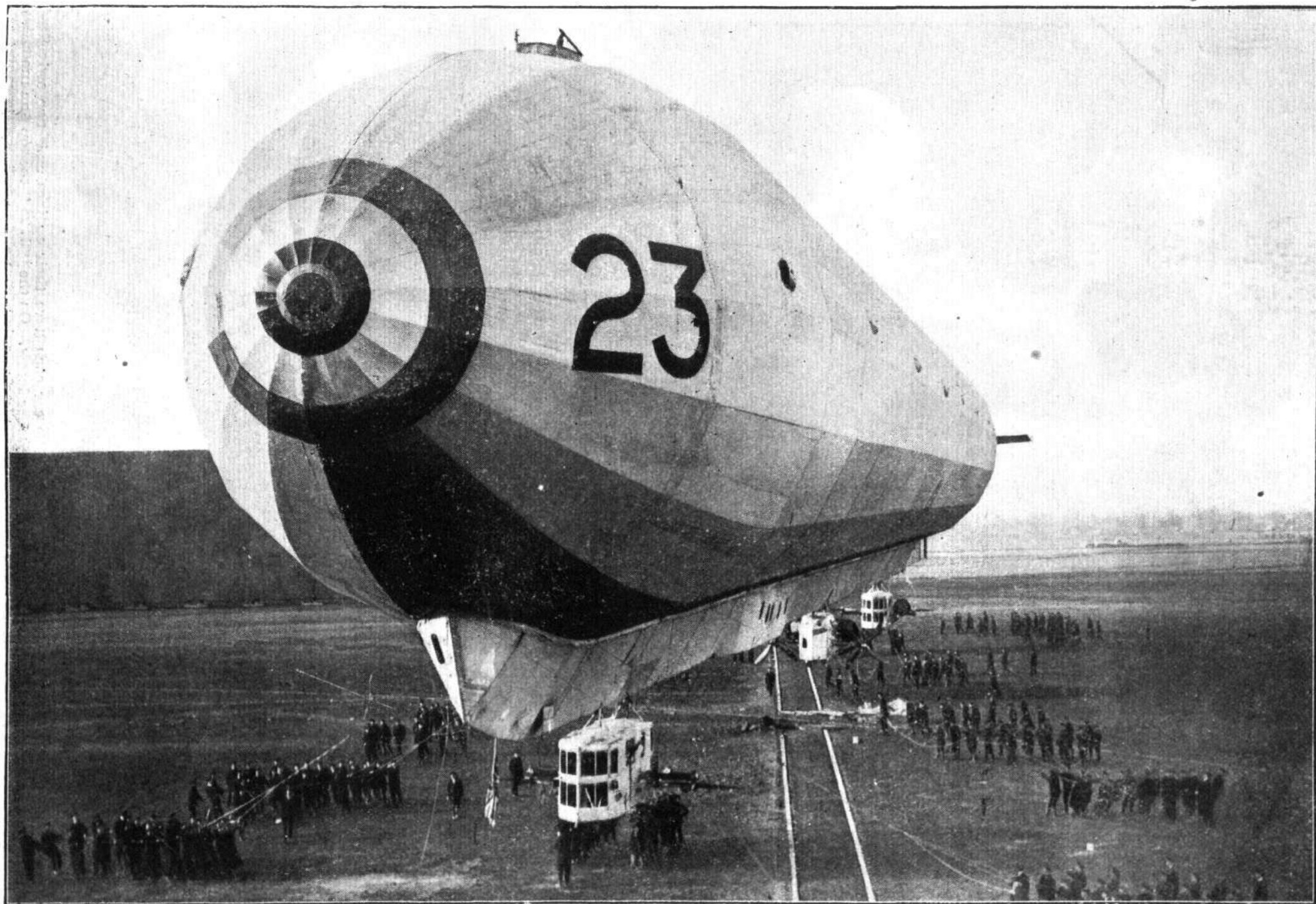
1. British Isles to America.—Distance, 3,000 miles. Steamship time, seven days. Shortest passage, five days. Airship time, at 50 m.p.h., 60 hours.

2. British Isles to Egypt, India, Malay States, Australia, New Zealand, China and Japan.

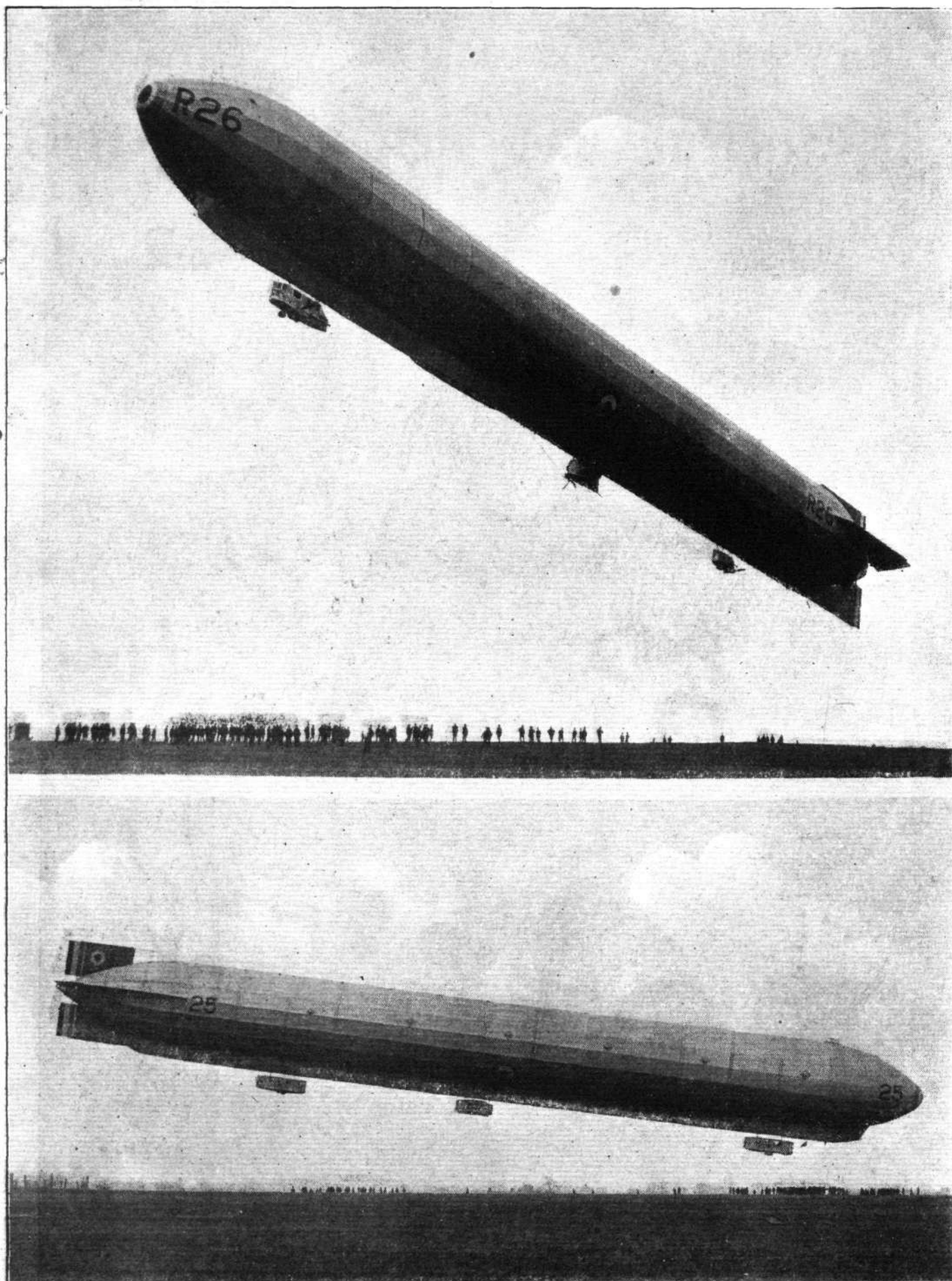
	Miles	Steamship Time Days	Airship Time Hours
London to Marseilles and Malta.			
Marseilles to Port Said ..	1,506	5	30
Brindisi to Port Said ..	925	2	18
Constantinople to Port Said ..	791	4	16
Port Said to Aden ..	1,310	5	16
Aden to Bombay ..	1,650	5½	33
Bombay to Colombo ..	883	2½	17
Colombo to Singapore ..	1,577	5½	31
Singapore to Hong Kong ..	1,440	5	30
Hong Kong to Shanghai ..	1,000	3½	20
Singapore to Port Darwin (Australia)	1,650	5½	33
Sydney to Wellington ..	1,233	5	24



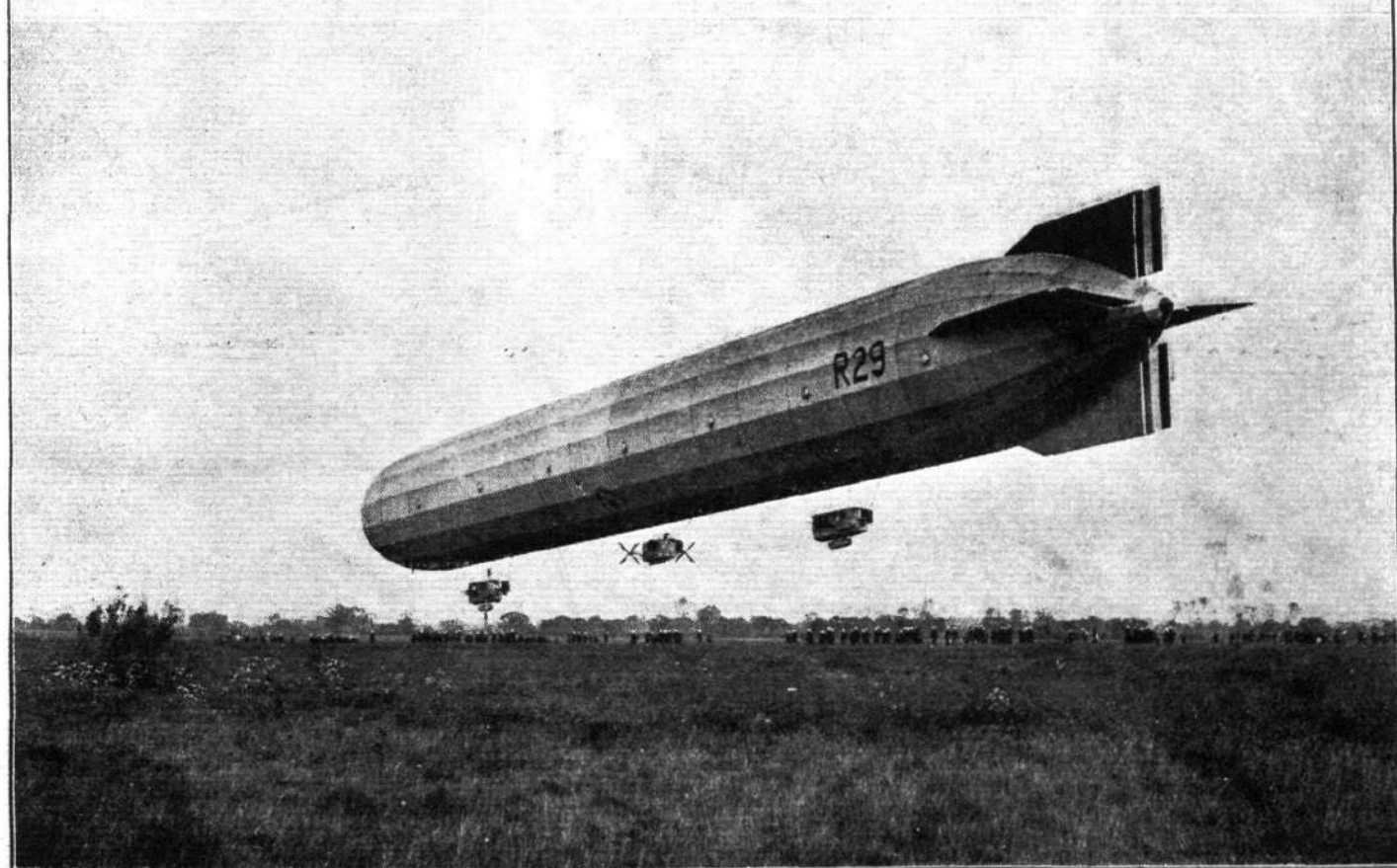
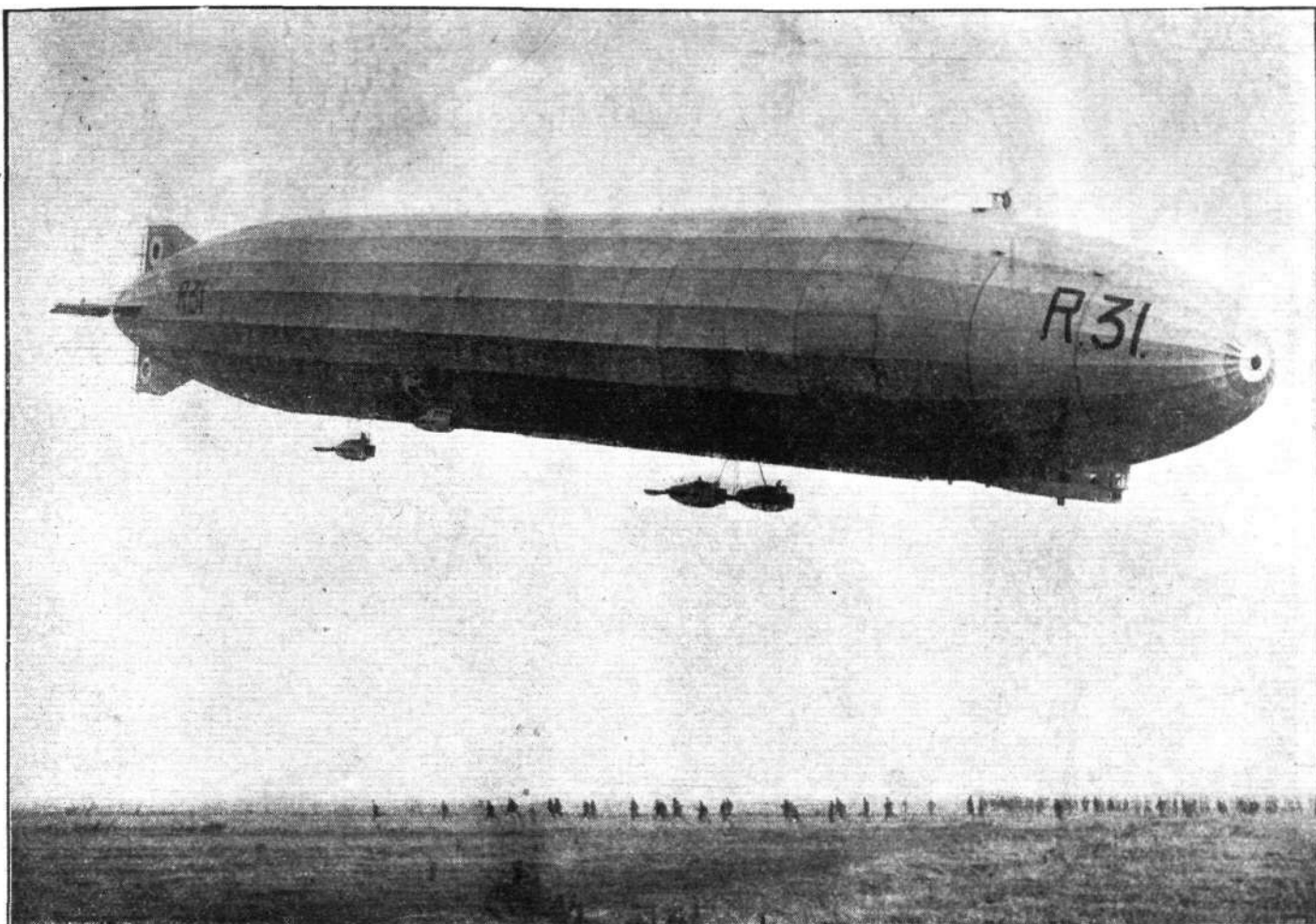
OUR AIRSHIP FLEET.—A couple of units at rest, as seen at night from outside. Note the "outlook" on top of shed.



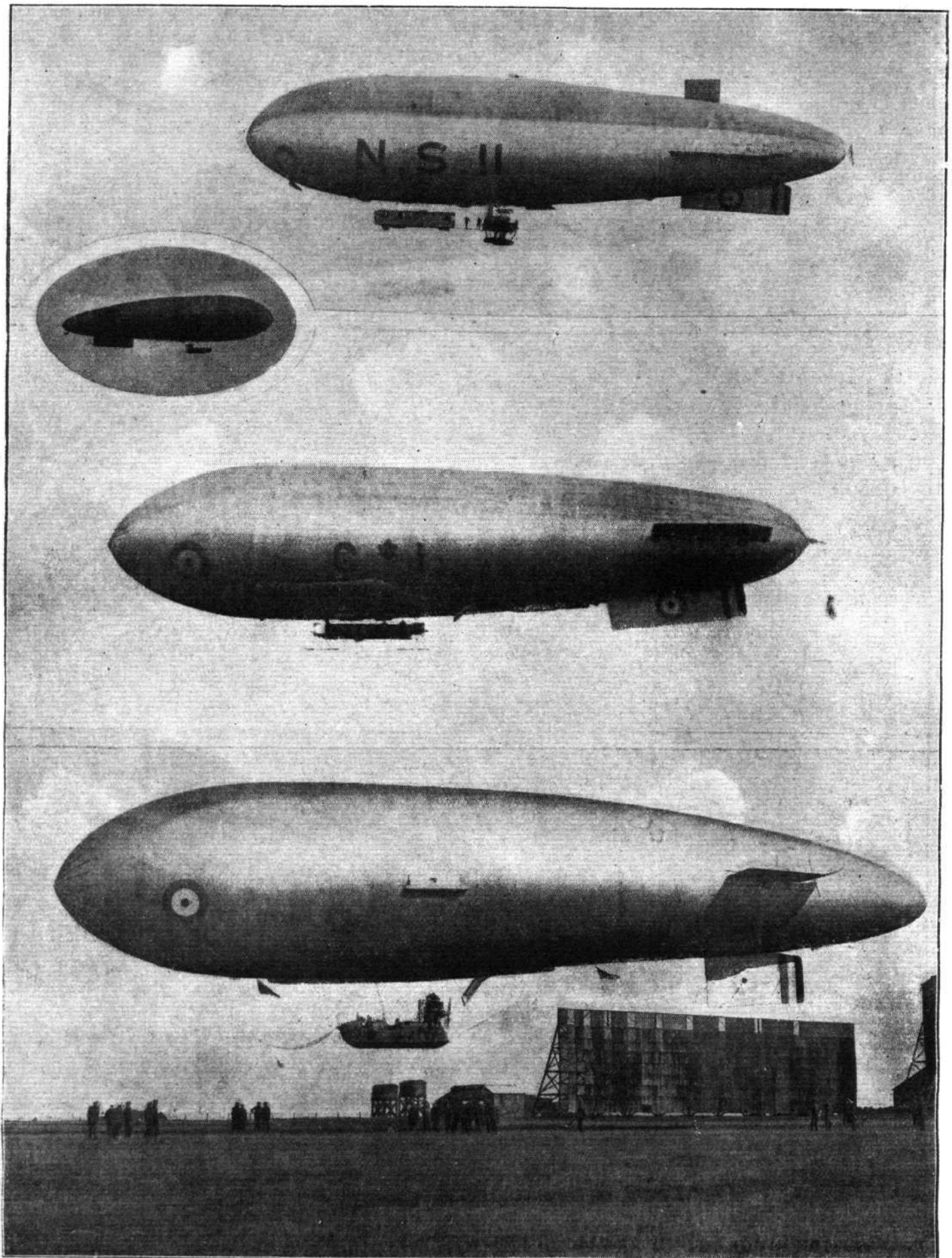
A CLOSE-UP VIEW OF "R. 23."—The keel containing the central cabin can be clearly seen, as can also the engine nacelles. Note the front gun mounting [on top of the envelope.



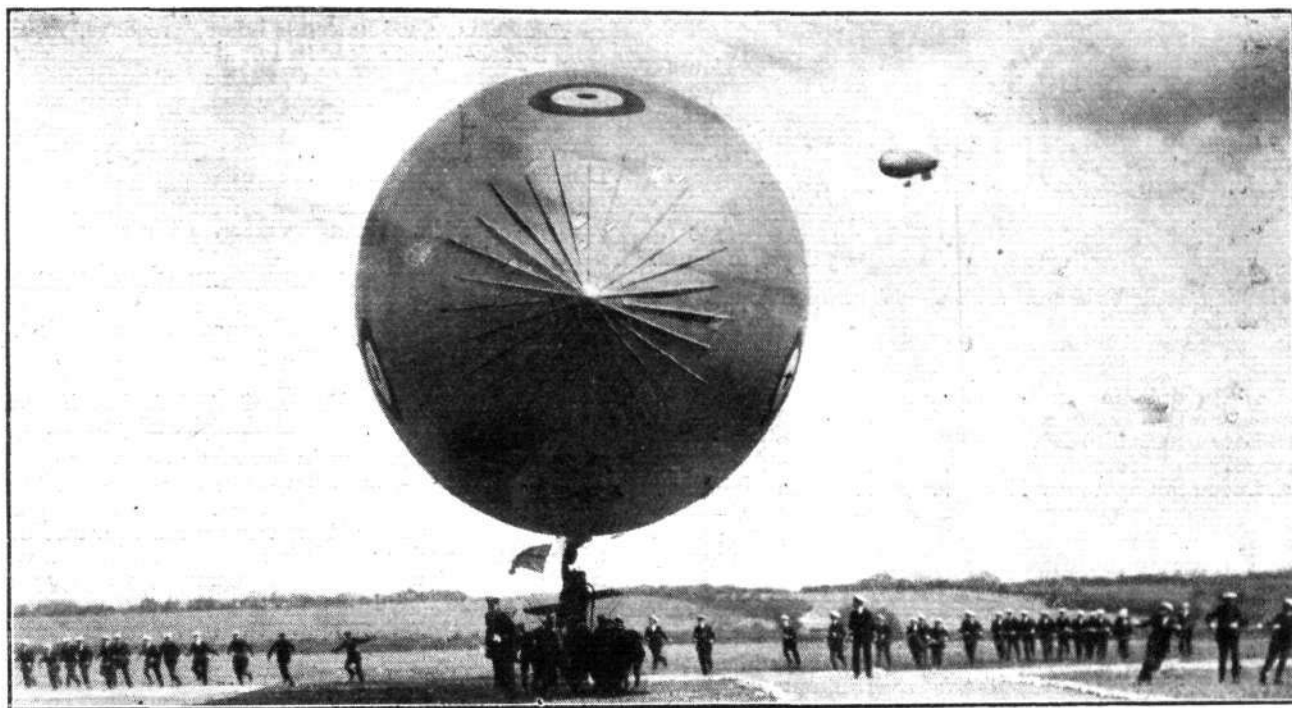
TWO BRITISH RIGID AIRSHIPS.—The front and middle car each have their engines and two swivelling propellers, one on each side, while the last car has a single pusher screw. On the "R. 25" the top gun mounting may be seen a short distance aft from the nose. Note the keel running from end to end, and its cabin.



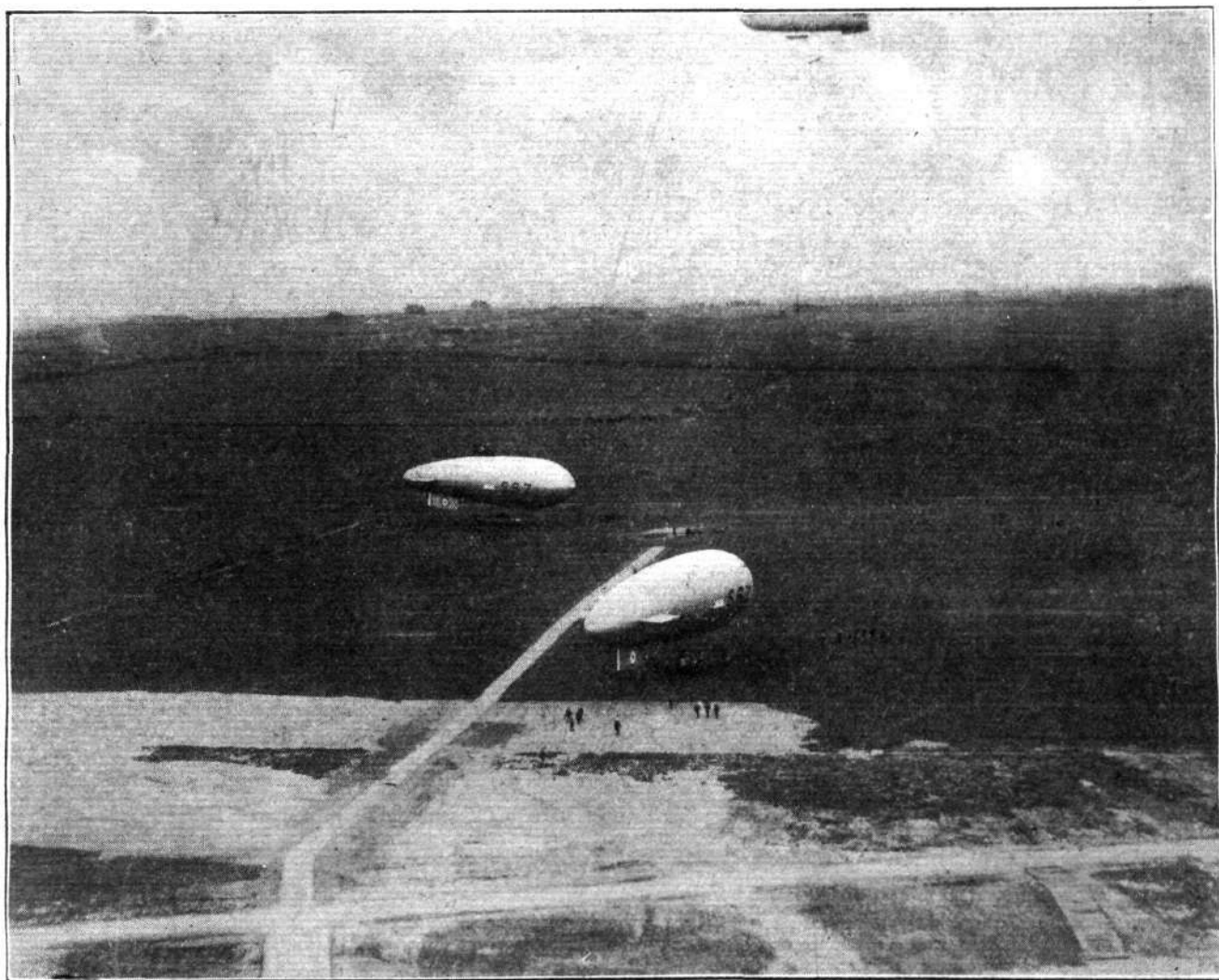
TWO BRITISH RIGID AIRSHIPS OF MORE RECENT TYPE.—The "R. 29," it will be seen, has three engine nacelles. In the "R. 31" the arrangement of the cars is different. In front there are two placed side by side, while farther aft are two more, also side by side, but further apart. A single engine nacelle is placed centrally near the stern, and near the bows may be seen the commander's cabin from where the navigation is done. It should be noted that in both these ships there is no keel.



FOUR BRITISH AIRSHIPS OF THE NON-RIGID TYPE.—The top and middle photographs show "Astra Torres" types, while the inset and the bottom illustrations are of ships of the "Blimp" type.



OUR AIRSHIP FLEET.—SS. "Z. 43," nose-end on, being brought into shed in 40 m.p.h. wind. Above, another Blimp waiting its turn.



OUR AIRSHIP FLEET.—A couple of "SS's.,'' with a third craft up above, ready for patrol duty.

3. British Isles to America.—Steamship time, Liverpool to Rio Janeiro 5,252 miles, 24 days.

Airship Time

	Miles	Hours
Liverpool to Madeira	1,500	30
Madeira to Sierra Leone	1,300	26
Sierra Leone to Pernambuco	1,400	28
Pernambuco to Rio Janeiro	1,140	23
Rio Janeiro to Buenos Ayres	1,140	23

130

= 5 days, 10 hours.

4. British Isles to South Africa.—Steamship time, 6,000 miles, 18 days.

Airship Time

	Miles	Hours
Liverpool to Madeira	1,500	30
Madeira to Sierra Leone	1,300	26
Sierra Leone to Lobito Bay	2,000	—
Lobito Bay to Capetown	2,000	—
Sierra Leone to Capetown	3,100	62

118

= 4 days, 18 hours.

5. British Isles to China and Japan.—Steamship time, London to Yokohama via Halifax and Vancouver, 9,185 miles, 21 days.

Airship Time

	Miles	Hours
Marseilles to Port Said	1,506	30
Port Said to Aden	1,310	26
Aden to Bombay	1,650	33
Bombay to Colombo	883	17
Colombo to Singapore	1,577	31
Singapore to Hong King	1,440	30
Hong Kong to Shanghai	1,000	20
Hong Kong to Yokohama	1,580	32

219

= 9 days, 2 hours.

5. Another route.—Liverpool to Halifax, 2,400 miles, 48 hours. To cross to Pacific Coast, 5 days. Vancouver to Yokohama, 4,200 miles, 84 hours. 10 days, 12 hours.

6. British Isles to Scandinavia—

	Miles	Steamship Time Days	Airship Time Hours
Newcastle to Bergen	405	1½	8
London to Christiania	680	2	14

Uses of the Airship

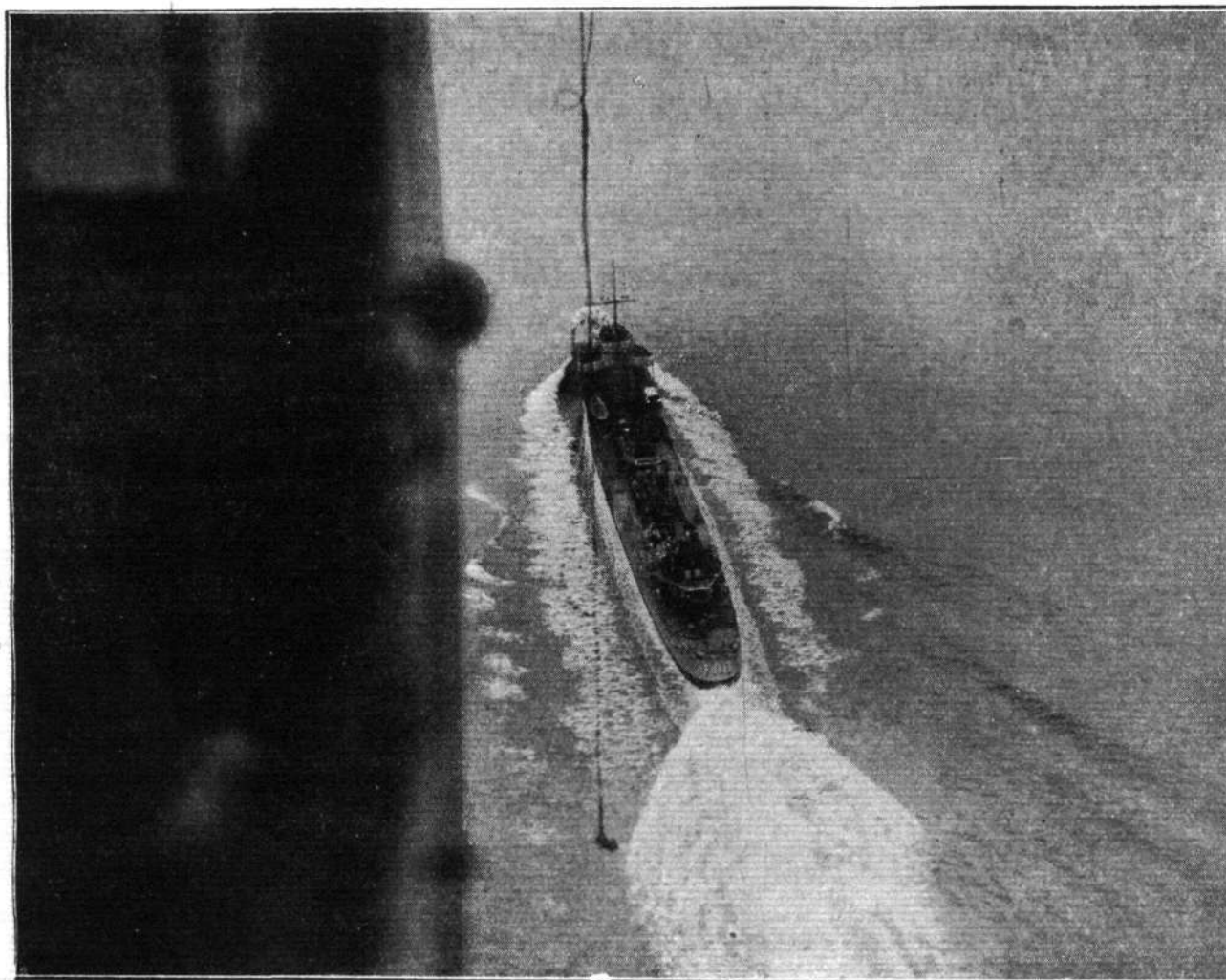
1. To carry mails and urgent goods over the routes previously outlined.
2. Coast guard, patrol duties, in Persian Gulf, China Seas, etc.
3. For exploration of parts at present inaccessible.
4. To quell native risings, police duties, etc., in Protectorates.
5. Political tours in Persia, Central Africa, Egypt, etc.
6. Extend British sphere of influence in general.

Taking these headings in rotation:—

1. It is not anticipated that airship transport of mails will be able to compete with the ordinary letter post as far as charges are concerned for some years to come, but as an adjunct to the telegraph, it is bound to assist to a very large extent the commercial development of the Empire. The saving in time would be an enormous benefit to the business man, enabling him to complete transactions with the minimum waste of time.

2. The small non-rigid type of airship which has been used for anti-submarine work with great success is particularly suitable for patrol work at present carried out by gun-boats in the Persian Gulf and China Seas. This form of patrol could be more economically carried out not only with regard to the first capital outlay, but also with regard to maintenance and running costs.

3. The survey of unexplored parts of the globe could be quickly carried out by means of the airship, as an airship can hover over any particular part to enable the lie of the land to be noted. This would save much labour and transport especially where thick undergrowth impedes the progress of mule transport.



OUR AIRSHIP FLEET.—Towing an airship, photographed from the airship.



OUR AIRSHIP FLEET.—A view of the Hun-hunter crew of a patrol non-rigid.

4. In the event of native risings, the despatch of an airship to the seat of the trouble for bombing purposes would no doubt have the necessary moral effect, and save the expense and the organisation of a military expedition. The airship would appear to have distinct advantages over the aeroplane when operating over rough country where a landing for the latter would be next to impossible.

5 and 6. With a view to extending British influence in general in addition to "Showing the Flag" in the various Protectorates, airship flights could be undertaken in Persia, Central Africa, Egypt, India, etc. There is no doubt that such flights would make a great impression on the native mind.

It should be observed that when the War broke out, this country had only started to consider the question of the utility of the airship, but sufficient progress has since been

made to enable airships to be produced that have covered over 2½ million miles in anti-submarine patrol. It is not difficult to realise that in the near future airships will be built that are capable of traversing the globe with only one or two stops for re-fuelling purposes. An airship has already carried out a non-stop flight from the Balkan States to Khartoum and back.

The question of airship transport is of such importance to the commerce of the Empire, that it should be investigated by a Commission representing all our Colonies with a view to establishing airship bases in the different countries concerned. Each Colony would thus provide a link in the chain of airship dockyards throughout the world.

Airship liners would then be provided with ports of call, paying fuel charges, dock dues, etc., for the accommodation provided in a similar manner to the steamship of to-day.

THE WAKEFIELD CHALLENGE TROPHY FOR BOXING

It may be remembered we published in our issue of November 28 last particulars of the generous offer of challenge trophies and medals for boxing made by Col. Sir Charles C. Wakefield, Bart., to the officers, non-commissioned officers, and men of the Royal Air Force. This excellent idea for stimulating the physical training and the *esprit de corps* of the Service met with instantaneous welcome and support from all concerned, and we hear that as soon as conditions permit the competitions may be expected to commence. The regulations under which the events will be decided have now been settled by the authorities, and an interesting series of contests is certain to ensue. Details will probably be available in the near future.

Meanwhile, it may be well to repeat the further offer of prizes which Sir Charles Wakefield also made for the most suitable designs for these trophies and medals. He is anxious that they should be appropriate and worthy of the subject, and he therefore offers a first prize of ten guineas for the best design for a trophy, and a second prize of five guineas. The

design should be one specially appropriate to aviation and also have some bearing on athletic training, and must, of course, be well adapted for reproduction in model form.

A further prize of five guineas is offered for the best design for the medals and a second prize of three guineas. The sketches should be addressed to Sir Charles C. Wakefield, Bart., c/o "FLIGHT," 36, Great Queen Street, W.C.2; and should be received not later than January 31. They will be considered by a small committee of well-known gentlemen whose names will be announced shortly.

It is hoped this competition will appeal especially to those numerous members of the Air Service who have artistic talents. Apart from the pecuniary reward, they will have a unique opportunity of creating something which will exist in permanent form in many squadron headquarters. Here is a great chance for those of our readers who have original ideas and can suggest something out of the ordinary style of athletic trophy. If you can't draw, show this to your friends!

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS.

THE FLYING SERVICES FUND

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Administered by the Royal Aero Club

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Total subscriptions received to Jan. 7th, 1919	14,510	11	9
Miss Eleanor Bairdsmith (3rd contribution) ..	5	5	0
Proceeds of a concert given by the R.A.F. Follies, Newlyn, at Penzance, November 8th and 9th, 1918	55	6	7

Total, January 14th, 1919 14,571 3 4

Offices: THE ROYAL AERO CLUB,
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H. E. PERRIN, Secretary.

HONOURS

Mentioned for Work in Italy

In his despatch dated October 26 and published in the *London Gazette* on January 6, General F. R. Earl of Cavan, K.P., Commander-in-Chief of the British Force in Italy, includes the following among those whose distinguished and gallant services and devotion to duty he considers deserving of special mention :—

Royal Air Force

Awcock, Capt. (A. Maj.) C. H. (R.G.A.); Barker, Capt. (A. Maj.) W. G., D.S.O., M.C.; Carpenter, Lieut. (A. Capt.) P., D.S.O., M.C.; Close, Sec. Lieut. W. T.; Craig, Sec. Lieut. and Hon. Lieut. G.; Foster, Lieut. C.; Hill, Sec. Lieut. P. L.; Howell, Lieut. (A. Capt.) C. E., D.S.O., M.C., D.F.C.; Johnston, Lieut. A. J.; Joubert de la Ferte, Lieut.-Col. (A. Col.) P. B., D.S.O. (R.A.), commanding 14th Wing; Luxton, Lieut. R. H. (Can. Fd. Arty.); Mounsey, Maj. R. J. (Lieut., Hamps. R.); Whittaker, Maj. J. T., M.C. (Lieut. R.A.S.C.).

Allen, 17789 Sergt. Clk. C.; Andrews, 12324 Cpl. Mech. (A. Sergt.-Mech.) E. H.; Bowler, 11539 Cpl. Clk. (A. Sergt. Clk.) W. C.; Cockerill, 25416 Sergt.-Mech. T. W.; Eaton, 16645 Sergt.-Mech. (A. Chief Mech.) F. G.; Holmes, 404363 1st Cl. A.M. (A. Cpl.) W. B.; Lee, 43669 1st Cl. A.M. R.; Lord, 13724 Chief Mech. C.; McNally, 34997 Sergt. Mech. T. Mockford, 26322 Chief Mech. A.; Powell, 84 S.M. F.; Ross, 36740 Cpl. Mech. A. W.; Tomlin, 12506 Sergt. Mech. H.; Turner, 18708 Sergt. Clk. E. W.; Warner, 23825 Clk. G. E.

Honours for War Services

It was announced in a supplement to the *London Gazette* on January 8 that the King has been pleased to give orders for the following appointments to the Most Excellent Order of the British Empire for services in connection with the War :—

Commanders (Civil Division)

Drogheda, Countess of, Kathleen.

Ross, James Stirling, Esq., Deputy Assistant Financial Secretary, Air Ministry.

Officers (Civil Division)

Bulman, Maj. George Purvis, Dep. Chief Inspector (Engines), A.I.D., Ministry of Munitions.

Fulton, Hamilton, Esq., Managing Director, Messrs. Martin-syde, Ltd.

Mayo, Maj. Robert Hobart, Section Director, Aircraft Technical Dept., M.O.M.

Members (Civil Division)

Allnutt, Arthur Joseph, Esq., Surveyor, Dept. of the Administrator of Works and Buildings, Air Ministry.

Andrews, Charles Henry, Esq., civil engineer, Dept. of the Administrator of Works and Buildings, Air Ministry.

Barnes, Edith Helen, Lady, R.A.F. Aid Committee.

Connolly, William Frederick, Esq., staff clerk, Finance Dept., Air Ministry.

Fozard, Capt. Harry Edwin, A.I.D., M.O.M.

Heath, John Henry, Esq., staff clerk, Finance Dept., Air Ministry.

Knibb, Frederick Charles, Esq., Examiner of Technical Accounts, Contracts Sect., Dept. Administrator, Works and Buildings, Air Ministry.

Lander, Richard Gilbert, Esq., Staff Sect., Dept. Administrator of Works and Buildings, Air Ministry.

Medcalf, Capt. Herbert, Works Engineer, Royal Aircraft Establishment, M.O.M.

Pickles, Edward Llewellyn, Esq., Chief Examiner, Air Inventions Committee.

Pollard, Major Frederick Ernest, Sub-Section Director, Technical Dept., Aircraft Production, M.O.M.

Rolfe, Miss Ethel Blanche, Production Officer, Aircraft Supply Dept., M.O.M.

Smith, Noel William Kelland Isbister, Esq., Assistant Private Secretary to the Secretary of State for Air.

Sykes, Capt. George, R.A.F., Purchasing Dept., British War Mission, U.S.A.

Thomson, Capt. David, Aeronautical Timber Supplies, British War Mission, U.S.A.

Wheatley, Capt. Christopher William, late Chief Assistant Director of Aeronautical Supplies, British War Mission, U.S.A.



The New Ministers

In the official announcement of the constitution of the new Government issued on January 10 the following appeared :—

War Office and Air Ministry

Secretary of State, Rt. Hon. Winston S. Churchill, M.P.

Under-Secretary of State, Viscount Peel.

Parliamentary and Financial Secretary, Rt. Hon. H. W. Forster, M.P.

Under-Secretary of State for Air, Major-Gen. Rt. Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P.

(The Under-Secretary of State for Air will be appointed Vice-President of the Air Council, and will preside over the Council.)

Ministry of Munitions (to become Ministry of Supply)

Minister, Andrew Weir.

Joint Parliamentary Secretaries, F. G. Kellaway, M.P.; Major J. L. Baird, C.M.G., D.S.O., M.P.

New Home for the Air Ministry

ONE of the first of the big Government departments to vacate its palatial hotel will be the Air Ministry, and it is hoped that the Hotel Cecil will be ready for vacation by the Spring. The Air Ministry, it is understood, is having placed at its disposal a block of buildings near Whitehall, which it is intended shall form its permanent home.

THE ROLL OF HONOUR

(When an Officer is seconded from the Army his unit is shown in brackets)

Published January 8

Killed

Ffrench, Capt. E. W.

Parks, Sec. Lieut. H. C.

Died of Injuries**Repatriated**

Anderson, Sec. Lieut. G. F.
Atkins, Sec. Lieut. C. A.
Atkins, Lieut. W. T. J.
Berry, Lieut. F. H.
Bosher, Lieut. H.
Clack, Lieut. L. A.
Collett, Lieut. H. S.
Coops, Lieut. F. C.
Coulthard, Lieut. R.
David, Sec. Lieut. C. K.
Davies, Sec. Lieut. D. P.
Denny, Lieut. C. H.
Elwig, Sec. Lieut. H. J. C.
Evans, Lieut. H. B.
Fletcher, Sec. Lieut. A.
Garrett, Lieut. A. L.
Gedge, Sec. Lieut. G.
Glazebrook, Lieut. R. F.
Gondre, Lieut. J.
Gray, Lieut. R. H.
Hacklett, Lieut. L. A.
Hall, Lieut. K. W. J.
Hempill, Lieut. A. E.
Home-Hay, Capt. J. B.
Lewis, Lieut. R. G.
Mallett, Lieut. D.
McCracken, Lieut. E. C. J.
McKelvey, Lieut. M. T.

Meyer, Lieut. O. F.
Mitchell, Lieut. P. C.
Nicholas, Sec. Lieut. E. M.
Oliver, Lieut. R. C. D.
Papenfus, Lieut. M. T. S.
Pemberton, Lieut. A. L.
Peterson, Sec. Lieut. G. G. W.
Puckridge, Capt. H. V.
Reid, Lieut. C. W.
Rickards, Lieut. A. R. M.
Rodger, Lieut. K. M.
Rolph, Sec. Lieut. E. G.
Rose, Lieut. G.
Russell, Lieut. F. C.
Scrivener, Sec. Lieut. H. K.
Singleton, Sec. Lieut. E.
Strainward, Sec. Lieut. F. L.
Struben, Lieut. H. M.
Sugden, Lieut. J. B. W.
Taylor, Lieut. A. L. T.
Thompson, Lieut. J. C.
Townley, Lieut. D. C.
Venter, Capt. C. J.
Warburton, Sec. Lieut. T.
Whyte, Sec. Lieut. R. P.
Wigan, Lieut. A.
Winter, Lieut. W. H.
Wright, Lieut. E. P.

Published January 9

Killed

McGuire, Sec. Lieut. T. F.

Previously Missing, now reported Killed

Boger, Lieut. W. O. (Can. Cav.). Foord, Lieut. E. A. (Man. Regt.).

Previously Missing, now reported by German Government**Killed or Died of Wounds**

Goodale, Lieut. W. H. (Sask. Regt.).

Died

Mackenzie, Lieut. E. C.

Pineo, Lieut. H. McD.

Repatriated

Adams, Lieut. A. T.
Allan, Lieut. A. M.
Allen, Sec. Lieut. J. M.
Ball, Lieut. A. C.
Beaumont, Lieut. F.
Biddington, Lieut. H. V.
Birch, Lieut. D. C.
Bird, Lieut. A. F.
Bird, Lieut. C. B., M.C.
Boote, Lieut. R. S. L.
Boumphey, Lieut. J. W.
Boyce, Lieut. H. B. P.
Braithwaite, Lieut. B. F.
Bury, Lieut. H. W.
Caldecott, Lieut. R.
Carr, Lieut. J. H. T.
Cartledge, Lieut. R. A.
Chubb, Lieut. J. A.
Clark, Capt. C. C.
Clark, Lieut. J. G.
Cocking, Lieut. L. G.
Coghill, Lieut. W. H.
Copeland, Capt. A. H. M.
Cowan, Lieut. A. R.
Davidson, Capt. T.
Dougall, Lieut. H. F.
di Balme, Count, Lieut. L. T. B.

Published January 10

Repatriated

Angus, Sec. Lieut. K. R.
Archibald, Sec. Lieut. L. M.
Armstrong, Sec. Lieut. R. H.
Arnold, Sec. Lieut. J.
Blake, Lieut. A. G. S.
Bryan, Lieut. F. F. H.
Burbury, Lieut. A. V., M.C.
Burrill, Lieut. T. F.
Carter, Maj. A. D., D.S.O.
Clarke, Lieut. C. H.
Craig, Lieut. F. C.
Crane, Lieut. C. G.
Crawford, Lieut. O. G. S.

Crickmore, Lieut. E. B.
Dean, Lieut. A. C.
Farrand, Lieut. E. S.
Gilbert, Lieut. F. C.
Glasspoole, Lieut. G. H.
Goodbehere, Lieut. P.
Griffiths, Lieut. F. W.
Holman, Lieut. L.
Hopewell, Lieut. D. C.
Hopkins, Lieut. G. M.
Illingworth, Lieut. F. W.
Jackson, Lieut. G. G.
Jones, Lieut. A. R.

Kane, Lieut. M. H. K., M.C.
Kemp, Lieut. F.
Knight, Lieut. N. L.
Knowles, Capt. M. B.
Laurie, Sec. Lieut. K. S.
Lees, Capt. A.
Lines, Sec. Lieut. T. H.
McGown, Lieut. J. C.
McGrath, Lieut. W. S.
Mackay, Lieut. W. B.
McKeown, Lieut. C. J. W.
McRae, Lieut. J. P.
Mallett, Lieut. H. P.
Malloch, Lieut. A. C.
Mardock, Capt. P. W.
Matson, Lieut. A. W.
Melvin, Lieut. D. L.
Milani, Lieut. R. S.
Muir, Sec. Lieut. A.
Parkinson, Lieut. J. A.
Peile, Sec. Lieut. A. H.
Powell, Maj. F. J., M.C.
Pretty, Sec. Lieut. H. J.

Read, Lieut. L.
Reid, Lieut. J. E.
Risk, Sec. Lieut. J. B.
Robinson, Lieut. J. C.
Ryall, Lieut. A. G.
Scarborough, Lieut. F.
Scholtz, Lieut. E.
Sibley, Capt. S. J.
Steeves, Lieut. G. T.
Sturgess, Lieut. T. M.
Styles, Sec. Lieut. W. B.
Tasker, Lieut. W. T. B.
Telfer, Sec. Lieut. H. C.
Thompson, Lieut. A.
Thornnton, Sec. Lieut. W. R.
Townsend, Lieut. H. E.
Warburton, Sec. Lieut. E. D.
Ward, Sec. Lieut. A. A.
Wilkins, Capt. H. O. D.
Willis, Lieut. N. D.
Wookey, Lieut. H. C.
Yates, Lieut. R. A.
Yeomans, Sec. Lieut. F. L.

Published January 11

Died

Mills, Lieut., F. C. M., Aus. P.C.

Repatriated

Arthur, Lieut. T. J.
Beattie, Lieut. A. G.
Boyd, Lieut. J.
Cameron, Sec. Lieut. I. D.
Caunt, Lieut. H. V.
Cassels, Sec. Lieut. H. K.
Clark, Lieut. F. S.
Crole, Capt. G. B., M.C.
Crosbee, Lieut. C. H.
De Selincourt, Capt. A.
Diamond, Lieut. W. E. de B.
Ellerbeck, Lieut. E. A. V.
Elliott, Lieut. G. L.
Fluke, Lieut. W. G.
Hanna, Lieut. A. S.
Hicks, Lieut. G. E.
Hill, Sec. Lieut. A. B.
Holcroft, Lieut. A. B.
Huggard, Lieut. J. C.
Insoll, Lieut. F. N.
Jefs, Lieut. C. H.
Kent, Sec. Lieut. T. J.
Kantel, Lieut. F. W.
Kert, Lieut. L.
Lee, Lieut. E. B.
Lewis, Lieut. M.
Lewis, Sec. Lieut. H. M.
Linnell, Lieut. H. G. B.
Luxmoore, Capt. F. L.

McKissock, Lieut. C. W.
Middleton, Lieut. A. H.
Miller, Lieut. D.
Ogden, Lieut. C. E.
Palmer, Lieut. A. W.
Pope, Capt. E. E. E.
Prier, Lieut. W. J.
Ringer, Lieut. E. C. S.
Scadding, Lieut. E.
Shaw, Lieut. J. W.
Smith, Lieut. B.
Manners-Smith, Lieut. J. A.
Stewart, Lieut. J. D. M.
Tatnall, Sec. Lieut. E. W.
Taylor, Lieut. R. C.
Taylor, Lieut. W. H.
Taylor, Lieut. L. G.
Thompson, Lieut. S.
Topliss, Lieut. R. H.
van Baerle, Lieut. P. E. H.
van Tilburg, Lieut. J. A.
Warren, Lieut. A. P.
Wells, Sec. Lieut. S. R.
Wells, Lieut. N. B.
Wensley, Lieut. J. H.
Wilford, Lieut. J. R.
Williams, Sec. Lieut. L. J.
Wills, Lieut. S. T.
Windle, Lieut. B. C. W.

Published January 13

Repatriated

Adams, Capt. R. G. H.
Baker, Lieut. R. P.
Birks, Lieut. N. A.
Blake, Sec. Lieut. H. P.
Brydone, Lieut. J.
Campbell, Lieut. K. D.
Casey, Lieut. P. J.
Colledge, Lieut. G.
Coutts, Lieut. R. W.
Cowan, Lieut. R. H.
Cross, Lieut. R. W.
Davies, Lieut. H. E.
Davis, Capt. G.
Dodson, Lieut. L.
Dogherty, Lieut. F. W.
Doyle, Lieut. D. C.
Drew-Brook, Lieut. T. G.
Edwards, Sec. Lieut. E. L.
Englsh, Lieut. W.
Fitz-Gibbon, Lieut. C. J.
Fraser, Lieut. A.
Galer, Lieut. H. E.
Gold, Sec. Lieut. D. G.
Goode, Lieut. R. J. E. P.
Greenslade, Lieut. R. S.
Greig, Capt. O.
Grierson, Lieut. C. D.
Hall, Lieut. W. E.
Harker, Lieut. G. T.
Hewitt, Lieut. H. A.
Holmes, Lieut. C. W. D.
Howes, Lieut. W. H.

Ivamy, Lieut. W. G.
Kemp, Lieut. N. H.
Kendall, Lieut. S.
Law, Lieut. J. R.
Lefevre, Lieut. F. E., M.C.
Manley, Lieut. G. A. C.
Martin, Lieut. D. A.
Metson, Lieut. G. F.
McMillan, Lieut. R. E.
Minifie, Capt. R. P.
Nixon, Lieut. L. G.
Park, Sec. Lieut. S. M.
Pepper, Lieut. A. C.
Phelan, Lieut. R. S.
Ross, Lieut. W.
Rush, Sec. Lieut. A. W.
Sen, Sec. Lieut. E. S. C.
Skinner, Lieut. A. H.
Skinner, Lieut. W. R. K.
Smith, Lieut. R. N.
Thomas, Lieut. G. P. F.
Turner, Lieut. G. F.
Vaughan, Lieut. D.
Walker, Lieut. W. R.
Waters, Lieut. C. B.
Waters, Lieut. H. E.
Weaver, Capt. J.
White, Lieut. H. W.
Williams, Capt. S. W.
Wilson, Sec. Lieut. T. S.
Wynne, Lieut. A. F.

**An Aircraft Exhibition at Newcastle**

THE first of what will probably be a series of aircraft exhibitions in the country under R.A.F. auspices will be opened at the Gosforth aerodrome, Newcastle-on-Tyne, on February 12, by Maj.-Gen. Cayley, C.B. Besides an array of captured German machines there will be displays of aerial fighting, parachute descents, etc., as well as demonstrations of aeroplane rigging, engine fitting, etc. Visitors will also be able to sit in a seat and work the controls of a machine in front of them, by the arrangement—recently illustrated in "FLIGHT"—which proved so popular at the exhibition at the Agricultural Hall. The exhibition will probably remain open

for about a month, during which time there will also be a series of cinema and lantern lectures and performances by the R.A.F. and other bands. The proceeds are to be devoted to the R.A.F. hospitals.

The Dilatory Hun!

It is officially stated that the Germans have fallen considerably short of the assigned totals of material and rolling stock which they were to have handed over within a month from the Armistice. The deficiencies are:—865 heavy guns, 7,000 machine-guns, 1,000 trench mortars, and, 600 aeroplanes, with 4,736 engines, 130,819 trucks and 5,000 motor lorries.

THE NIEUPORT "NIGHTHAWK"

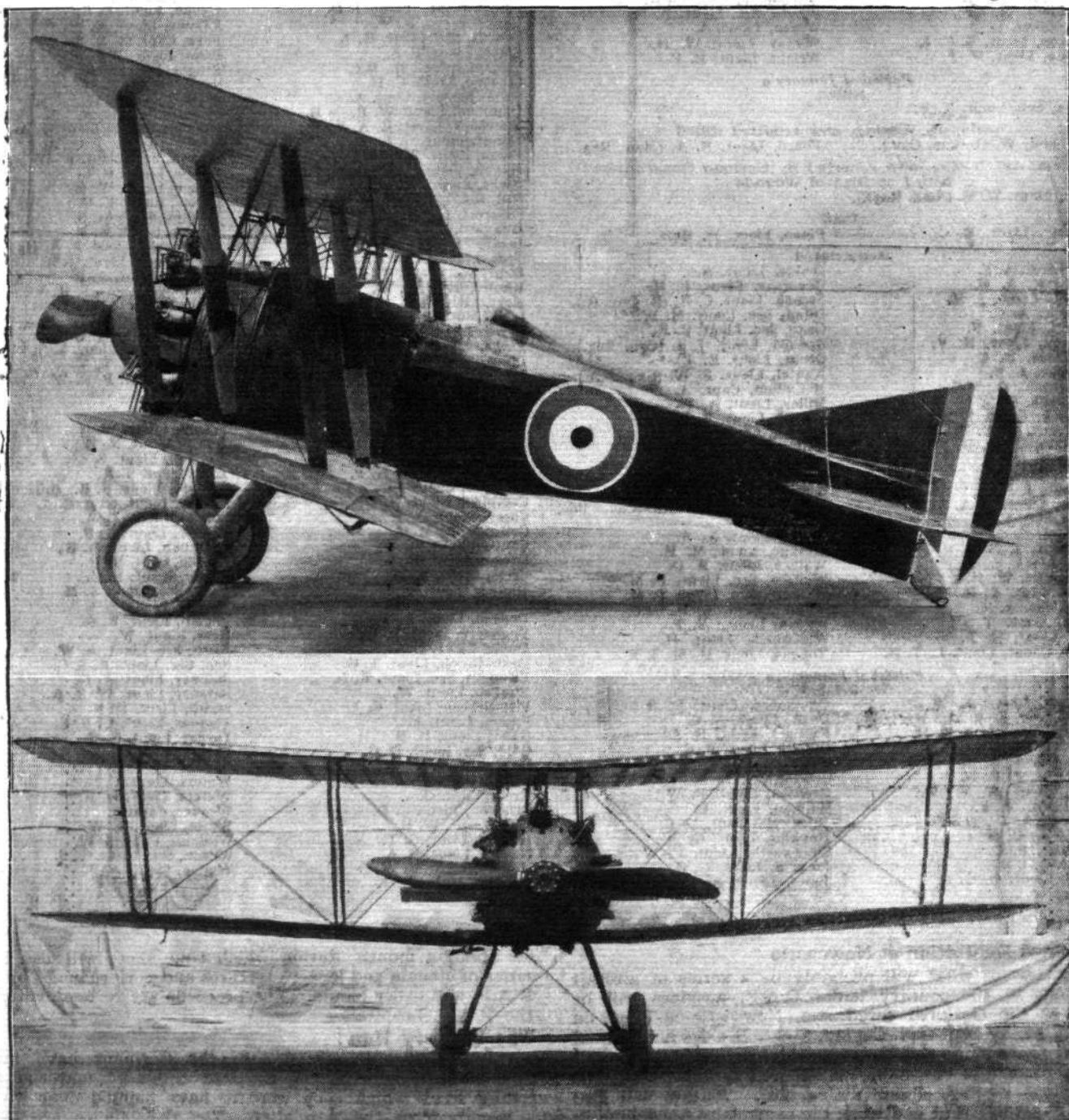
AMONG the machines of which it has not hitherto been permissible to give any particulars is the little tractor scout called the "Nighthawk," designed and built by the Nieuport and General Aircraft Co., Ltd., of Cricklewood. We are pleased to be able to publish this week photographs of this interesting machine.

The first Nieuport Nighthawk was built and tested some time ago, and the machine represented in the accompanying photographs is the second of the type to be constructed. It is expected to have a speed of 135 m.p.h. at 10,000 ft. and a ceiling of somewhere about 28,000 ft. The engine fitted is the famous A.B.C. "Dragonfly" of 320 h.p.

The Nieuport Nighthawk is of particular interest as having been built to the first specifications issued by the Royal Air Force. When it was decided that the time had come for concentrating on a limited number of types to finish the war, the Nieuport Nighthawk was included in the single-seater fighter class, to be fitted with the "Dragonfly" engine. The points in favour of its adoption are that it has the performance required, that its structural strength has been proved by loading tests on every part of the machine; that the general arrangement of the machine is such as to give

the best possible facilities to the pilot for fighting, such as a minimum of blind area and a good position and accessibility for guns, instruments, &c., and that the detail design has been got out with a view to quick and easy production. It might also be mentioned, as being somewhat out of the ordinary, that complete engineering drawings and schedules had been prepared beforehand, while materials' lists could be issued to contractors from the beginning, thus saving much valuable time.

We might mention that the design was carried out by Mr. H. P. Folland, chief engineer and designer of the Nieuport and General Aircraft Co., who was formerly Assistant Chief Designer at the Royal Aircraft Factory, where he got out the designs for the F.E.2 and the S.E.5. Another machine for which Mr. Folland was responsible was the S.E.4, a small tractor scout with stream line body and single I struts, fitted with 160 h.p. Gnome engine. This machine was flown by Maj.-Gen. Sir J. M. Salmond in 1914, and is said to have developed a speed of 135 m.p.h., while climbing the first 1,500 ft. in one minute. Two photographs of this machine appeared in "FLIGHT" of January 20, 1916. The S.E.4 was not, however, adopted for the Flying Services.



Side view and front view of the Nieuport "Nighthawk," 320 h.p. A.B.C. "Dragonfly" engine.

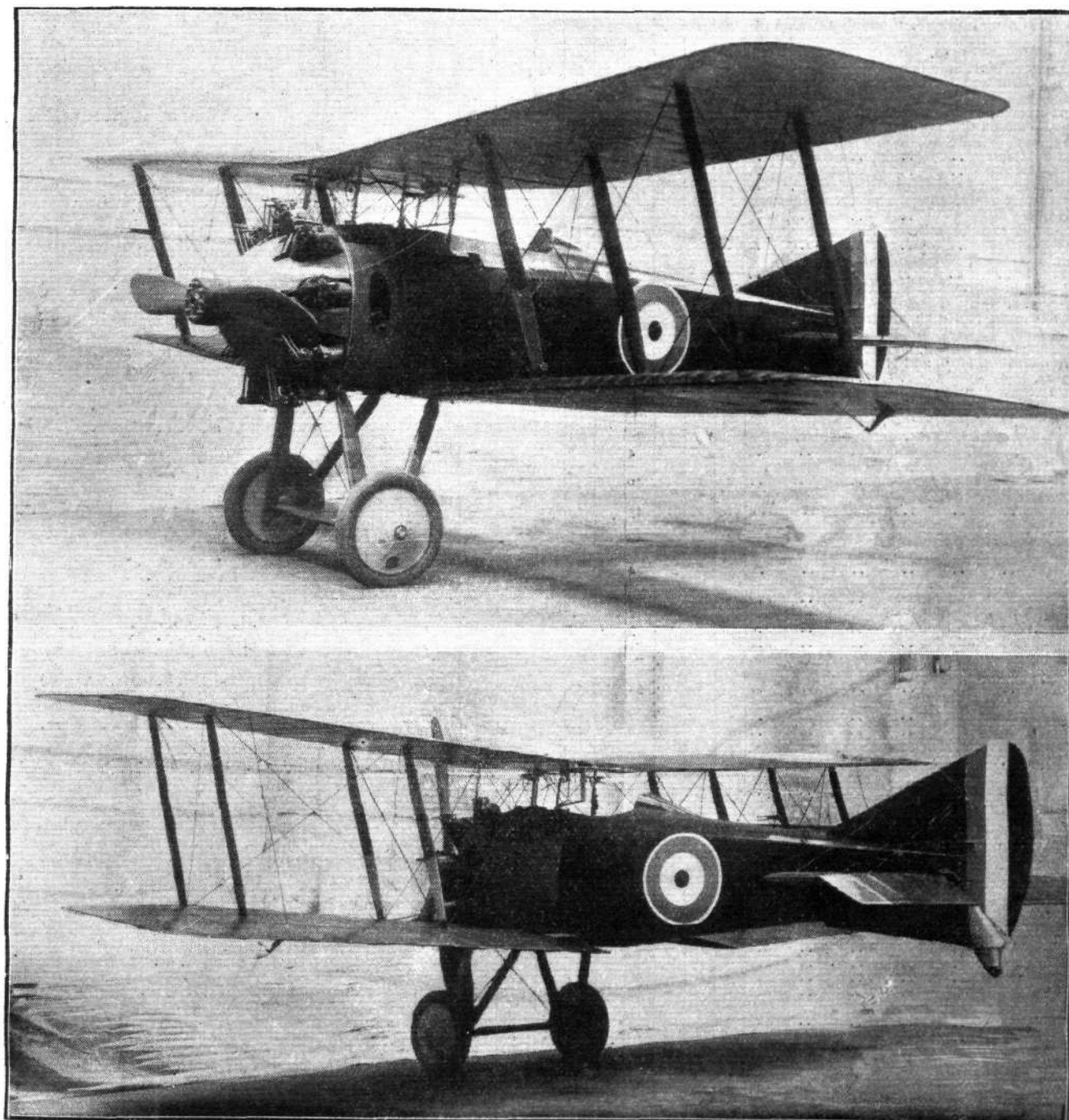
TO CONSTANTINOPLE AND BACK BY AEROPLANE

ON Wednesday of last week Mr. F. Handley-Page, C.B.E., delivered a most interesting "Juvenile" lecture, under the above title, at the Central Hall, Westminster. Lieut.-Col. Alan Burgoyne, M.P., was in the chair, and in a few well-chosen words managed to impress upon the audience the importance of the times in which we are at present living. He pointed out how the lure of adventure has in the past been instrumental in building our glorious Navy, and appealed to the youthful part of the audience to become as enthusiastically interested in all pertaining to the air as their parents were in their youth in all matters relating to the sea, and thus to help build up as great a future for British Air Power as past generations have done for our Sea Power.

Mr. Handley-Page then commenced his lecture by showing lantern slides of the older type of H.P. machine, explaining the functions of the various parts. A series of excellent slides were shown illustrating the progress of an aeroplane flying from London to Constantinople, a large number of which were views from above of the River Rhone, which was used as a guide for a considerable portion of the journey.

A slide showing the route followed on a map of Europe helped to fix in the youthful minds, and incidentally in some of the older minds also, the magnitude of the flight.

Of very great interest were the slides showing Mount Vesuvius in eruption, especially those taken close up and over the crater, which enabled one to look down into the volcano in a manner that would have been impossible but for aircraft. After the lantern slides the programme was concluded by a series of cinematograph films showing the new big Handley-Page, and by an older film showing mail and passenger carrying of the future. The lecturer's remarks, as well as the excellent pictures, were received with applause by both young and old members of the audience, and it is quite evident that the enthusiasm and interest in matters aerial referred to by the chairman may be greatly stimulated by lectures of this kind, to the ultimate good of British aviation, and the Royal Aeronautical Society is to be congratulated upon its foresight in having arranged this "Juvenile" lecture. We trust that it may be followed by many more all over the country, since the importance of propaganda work of this kind can scarcely be exaggerated.



Three-quarter front and rear views of the Nieuport "Nighthawk," a small, fast, single-seater fighter with a very good performance.

AIR RAIDS AND BOMBARDMENTS

THE following return of airship and aeroplane raids over Great Britain, and bombardment of the coast, with the resulting casualties, has been issued by the Press Bureau:—

SECTION 1. AIRSHIP RAIDS.

(January 19, 1915, to April 13, 1918.)

Date and Locality.	Civilian Casualties.								Sailors and Soldiers.	
	Killed.				Injured.				Killed.	Injured.
	Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.		
1915.										
Jan. 19-20, Norfolk	2	2	—	4	9	4	2	15	—	1
April 14-15, Northumberland	—	—	—	—	—	1	1	2	—	—
April 15-16, Essex and Suffolk	—	—	—	—	—	—	—	—	—	—
April 29-30, Suffolk	—	1	—	1	—	—	—	—	—	—
May 9-10, Southend	—	—	—	—	1	—	—	1	—	1
May 16-17, Ramsgate	1	1	—	2	—	—	—	—	—	—
May 26-27, Southend	—	2	1	3	3	—	—	3	—	—
May 31-June 1, East London	1	2	4	7	13	13	7	33	—	2
June 4-5, Kent, Essex, and East Riding	—	—	—	—	3	4	1	8	—	—
June 6-7, Hull, Grimsby, and East Riding	5	13	6	24	18	13	7	38	—	2
June 15-16, Northumberland and Durham	18	—	—	18	72	—	—	72	—	—
Aug. 9-10, Goole, East Riding, Suffolk, and Dover	1	10	6	17	5	6	7	18	—	3
Aug. 12-13, East Suffolk and Essex	4	2	—	6	5	10	9	24	—	—
Aug. 17-18, Kent, Essex, and London	7	2	1	10	16	20	12	48	—	—
Sept. 7-8, East Suffolk and London	6	6	6	18	9	15	13	37	—	1
Sept. 8-9, North Riding, Norfolk, and London	15	3	6	24	50	32	10	92	2	2
Sept. 11-12, Essex	—	—	—	—	—	—	—	—	—	—
Sept. 12-13, Essex and East Suffolk	—	—	—	—	—	—	—	—	—	—
Sept. 13-14, East Suffolk	—	—	—	—	—	—	—	—	—	—
Oct. 13-14, Norfolk, Suffolk, Home Counties, and London	31	17	6	54	71	27	9	107	17	21
1916.										
Jan. 31-Feb. 1, West Suffolk and Midland Counties	29	26	15	70	43	50	19	112	—	1
March 5-6, Hull and East Riding, Lincolnshire, Leicester County, Rutland, and Kent	9	4	5	18	22	22	8	52	—	—
March 31-April 1, Lincolnshire, Essex, and Suffolk	6	4	4	17	2	3	4	9	31	55
April 1-2, Durham County and North Riding*	13	7	2	22	67	43	18	128	—	2
April 2-3, East Suffolk, Northumberland, London and Scotland	10	—	3	13	6	13	5	24	—	—
April 3-4, Norfolk	—	—	—	—	—	—	—	—	—	—
April 5-6, Yorkshire and County Durham	—	—	1	1	3	1	5	9	—	—
April 24-25, Norfolk, Lincolnshire, Cambridgeshire, and Suffolk	—	1	—	1	1	—	—	1	—	—
April 25-26, East Suffolk, Essex, Kent and London	—	—	—	—	—	—	—	—	—	—
April 26-27, Kent	—	—	—	—	—	—	—	—	—	—
May 2-3, Yorkshire, Northumberland, and Scotland	4	3	—	7	16	8	1	25	2	5
July 28-29, Lincolnshire and Norfolk	—	—	—	—	—	—	—	—	—	—
July 31-Aug. 1, Norfolk, Suffolk, Cambridgeshire, Lincolnshire, Nottinghamshire and Kent	—	—	—	—	—	—	—	—	—	—
Aug. 2-3, Norfolk, East Suffolk, and Kent	—	—	—	—	—	—	—	—	—	—
Aug. 8-9, Northumberland, Durham, East Riding, North Riding, Hull, and Norfolk	2	4	4	10	5	5	5	15	—	1
Aug. 23-24, East Suffolk	—	—	—	—	—	—	—	—	—	—
Aug. 24-25, East Suffolk, Essex, Kent, and London	3	4	2	9	9	11	5	25	—	15
Sept. 2-3, East Riding, Lincolnshire, Nottinghamshire, Norfolk, Suffolk, Cambridgeshire, Huntingdonshire, Essex, Hertfordshire, Bedfordshire, Kent, and London	1	2	1	4	6	5	1	12	—	—
Sept. 23-24, Lincolnshire, Nottinghamshire, Norfolk, Kent, and London	24	12	4	40	57	44	25	126	—	4
Sept. 25-26, Lancashire, Yorkshire, and Lincolnshire	14	17	12	43	7	13	11	31	—	—
Oct. 1-2, Lincolnshire, Norfolk, Cambridgeshire, Northamptonshire, Hertfordshire and London	—	—	—	—	—	1	—	1	1	—
Nov. 27-28, Durham, Yorkshire, Staffordshire, and Cheshire	1	3	—	4	16	14	7	37	—	—
1917.										
March 16-17, Kent and Sussex	—	—	—	—	—	—	—	—	—	—
May 23-24, Essex, Norfolk, and Suffolk	1	—	—	1	—	—	—	—	—	—
June 16-17, Kent and Suffolk	2	1	—	3	5	7	2	14	—	2
Aug. 21-22, East Riding	—	—	—	—	—	1	—	1	—	—
Sept. 24-25, Lincolnshire and Yorkshire	—	—	—	—	—	3	—	3	—	—
Oct. 19-20, Midlands, Eastern Counties, and London	3	12	16	31	24	17	11	52	5	3
1918.										
March 12-13, East Riding	—	1	—	1	—	—	—	—	—	—
March 13-14, Durham	2	2	4	8	11	19	9	39	—	—
April 12-13, Lincolnshire, Lancashire, and Warwickshire	2	4	1	7	10	6	4	20	—	—
Totals for airship raids	217	171	110	498	587	431	218	1236	58	121

* The relative proportions of men, women, and children injured in this raid are not known exactly; the best available estimate has been given.

SECTION 2. AEROPLANE RAIDS.

(December 24, 1914, to June 17, 1918.)

1914.										
Dec. 24, Dover	—	—	—	—	—	—	—	—	—	—
Dec. 25, Kent	—	—	—	—	—	—	—	—	—	—
1915.										
Feb. 21, Essex	—	—	—	—	—	—	—	—	—	—
April 16, Kent	—	—	—	—	—	—	—	—	—	—
July 3, East Suffolk	—	—	—	—	—	—	—	—	—	—
Sept. 13, Margate	—	2	—	2	2	4	—	6	—	—
1916.										
Jan. 22-23, Dover	1	—	—	1	2	1	3	6	—	—
Jan. 23, Kent	—	—	—	—	—	—	—	—	—	—
Feb. 9, Kent	—	—	—	—	—	2	1	3	—	—
Feb. 20, Kent and East Suffolk	1	—	—	1	1	—	—	1	—	—
March 1, Broadstairs and Margate	—	—	1	1	—	—	—	—	—	—
March 10, Deal, Dover, Margate and Ramsgate	—	3	6	10	4	3	8	15	4	11
April 24, Dover	—	—	—	—	—	—	—	—	—	—
May 3, Deal	—	—	—	—	3	1	—	4	—	—
May 19-20, Kent and Dover	—	—	—	—	—	1	—	1	1	1
July 9, Kent (North Foreland)	—	—	—	—	—	—	—	—	—	—
July 9-10, Dover	—	—	—	—	—	—	—	—	—	—

(Continued on next page)

BACK FROM GERMANY

THE following R.F.C. officers, who were prisoners of war in Germany, have been released, and have arrived in England. Where an officer was seconded his original unit is shown in brackets:—

Nixon, Lieut. L. G.
 Norman, Lieut. G. R.
 Ogden, Lieut. C. E.
 Oliver, Lieut. R. C. D.
 Organ, Lieut. A. P.
 Palmer, Lieut. A. W.
 Park, Lieut. S. M.
 Pepper, Lieut. A. C.
 Percival, Lieut. E.
 Phelan, Lieut. R. S.
 Pinkerton, Lieut. A. L. (R.F.A.).
 Prier, Lieut. W. J.
 Quilter, Lieut. E. G. C.
 Raymond Barker, Lieut. A. B.
 Read, Lieut. L.
 Reynell, Lieut. A. W.
 Rickards, Lieut. A. R. M.
 Ringer, Sec. Lieut. E. C. S. (R. Suss. R.).
 Roberts, Lieut. C. L.
 Roche, Lieut. S.
 Ross, Lieut. W. (R. Welsh Fus.).
 Rush, Lieut. A. W.
 Salmond, Capt. H. G.
 Sams, Lieut. F. D. H.
 Scholtz, Lieut. E.
 Shakesby, Sec. Lieut. C. V. (E. Yorks. R.).
 Shaw, Lieut. J. W. (Oxf. and Bucks L.I.).
 Skinner, Lieut. W. R. K.
 Smith, Lieut. B. (Essex R.).
 Smith, Lieut. Charles (W. Yorks R.).
 Smith, Sec. Lieut. C. F. (King's L'pool. R.).
 Smith, Lieut. R. M.
 Southron, Lieut. T. M. (R.F.A.).
 Steeves, Lieut. D. T.
 Strange, Lieut. M. H.
 Sturgess, Lieut. T. M.
 Styles, Sec. Lieut. W. B.
 Swart, Lieut. O. B.
 Tambling, Lieut. H. G.
 Taylor, Lieut. L. G.
 Taylor, Lieut. N. J.
 Taylor, Lieut. R. C. (R. War. R.).
 Taylor, Lieut. W. H.
 Thomas, Lieut. G. P. F. (Durh. L.I.).
 Thompson, Lieut. S.
 Timmis, Lieut. L. W.
 Topliss, Lieut. R. H.
 Turner, Lieut. G. F.
 Van Baerle, Sec. Lieut. P. E. H. (W. Yorks R.).
 Vaughan, Lieut. D.
 Vick, Lieut. W. W.
 Vibond, Lieut. F. E. (Manch. R.).
 Wadden, Lieut. G.
 Walker, Lieut. R. D.
 Warren, Lieut. A. P.
 Waters, Lieut. C. B. (Lond. R.).
 Waters, Lieut. H. E.
 Wells, Lieut. N. B.
 Westfield, Lieut. F. J. (Manch. R.).
 Whitworth, Lieut. H.
 Wigan, Lieut. A. P. C.
 Willcox, Lieut. W. T.
 Williams, Lieut. L. J.
 Wilson, Capt. R. E. (Hamps. R.).
 Wilson, Lieut. T. S.
 Windle, Lieut. B. C. W.
 Wookey, Sec. Lieut. H. C. (Glouc. R.).
 Wright, Lieut. M. T. (L. N. Lan. R.).
 Yeo, Lieut. H. A.
 Yeomans, Lieut. F. L.
 Alderson, Lieut. A. G. O. (Worc. R.).
 Ambler, Sec. Lieut. J. J.
 Cahusac, Capt. E. B., M.C. (S. Staff. R.).
 Crisp, Lieut. A. R.
 Isbell, Lieut. A. T.
 Boumphy, Lieut. J. W. (Yeo.).
 Chisdon, Lieut. M. R. (R.G.A.).
 Davidson, Capt. T. (Camn. Highrs.).
 Cushing, Lieut. D.
 Hewitt, Sec. Lieut. H. A.
 Ohrt, Lieut. F. M.
 Clarke, Lieut. T. H.
 Colbert, Lieut. L. A.
 Cooke, Sec. Lieut. E. A.
 Davies, Lieut. C. W.
 Deane, Lieut. G. S.
 Fenwick, Lieut. T. B.
 Fitzgerald, Lieut. J. J.
 Haight, Lieut. J. I.
 Hammond, Lieut. H. T.
 Harris, Sec. Lieut. H.
 Haseler, Lieut. G. F.
 Heagerty, Lieut. J. S.
 Heaphy, Sec. Lieut. M.
 Hervey, Lieut. H. E., M.C.
 Hollis, Lieut. J. A.
 Jones, Lieut. W. H.
 Kerr, Lieut. C.
 Loyd, Lieut. E. E. F. (Dn. Gds.).

(Continued on next page)

(Air Raids and Bombardments, conti

AEROPLANE RAIDS.

1916 (continued)														
Aug. 12, Dover	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Sept. 22, Kent and Dover	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oct. 22, Sheerness	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oct. 23, Margate	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nov. 28, London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1917														
March 1, Kent	..	..	..	..	..	..	..	..	..	..	..	..	..	..
March 16, Kent and Margate	..	..	..	..	..	..	..	..	..	..	..	..	..	..
March 17, Kent	..	..	..	..	..	..	..	..	..	..	..	..	..	..
April 5, Kent and Ramsgate	..	..	..	..	..	..	..	..	..	..	..	..	..	..
May 6-7, London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
May 25, Kent and Folkestone	..	..	..	..	..	..	..	..	..	..	..	..	..	..
June 5, Essex and Kent	..	..	..	..	..	..	..	..	..	..	..	..	..	..
June 13, Margate, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
July 4, Essex and Suffolk	..	..	..	..	..	..	..	..	..	..	..	..	..	..
July 7, Margate and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
July 22, Essex and Suffolk	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Aug. 12, Essex and Margate	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Aug. 22, Kent	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 2-3, Dover	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 3-4, Kent	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 4-5, Home Counties and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 24-25, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 25-26, Kent and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 28-29, Home Counties	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 29-30, Kent and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sept. 30-Oct. 1, Kent, Essex and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oct. 1-2, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oct. 29-30, Essex	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oct. 31, Kent and Dover	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oct. 31-Nov. 1, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dec. 6, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dec. 18, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1918														
Jan. 28-29, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jan. 29-30, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 16-17, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 17-18, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb. 18-19, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
March 7-8, Kent, Essex, Hertfordshire, Bedfordshire, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
May 19-20, Kent, Essex, and London	..	..	..	..	..	..	..	..	..	..	..	..	..	..
June 17, Kent	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals for aeroplane raids	..	..	..	..	..	..	..	..	..	..	..	..	..	..



Flying to the Peace Conference

WHILE most of the delegates to the Peace Conference journeyed to Paris in the orthodox way, Mr. Bonar Law, accompanied by his private secretary, Mr. J. C. C. Davidson, started in a Handley-Page from Hendon. The machine landed in France, and Mr. Bonar Law, having met the other Ministers, completed the journey to the capital by train. Gen. Sir F. H. Sykes, Chief of the Air Staff, also travelled to France by aeroplane.

Sir Douglas Haig on the R.A.F.

IN the despatch dated December 21 and issued in the *London Gazette* on January 7, Field-Marshal Sir Douglas Haig, K.T., pays the following tribute to the work of the R.A.F. in the concluding stages of the War :-

"During the past year the work of our airmen in close co-operation with all fighting branches of the Army has continued to show the same brilliant qualities which have come to be commonly associated with that Service; while the ever-increasing size of the Royal Air Force and the constant improvement in the power and performance of machines, combined with the unfailing keenness of pilots and observers, have enabled intense activity to be maintained at all times.

"Some idea of the magnitude of the operations carried out can be gathered from the fact that from the beginning of January, 1918, to the end of November, nearly 5,500 tons of bombs were dropped by us, 2,953 hostile aeroplanes were destroyed, in addition to 1,178 others driven down out of control, 241 German observation balloons were shot down in flames, and an area of over 4,000 square miles of country has been photographed, not once but many times.

"The assistance given to the infantry by our low-flying aeroplanes during the battles of March and April was repeated during the German offensives on the Aisne and Marne, on both of which occasions British squadrons were dispatched to the French battle-front and did very gallant service. During our own attacks hostile troops and transport have been constantly and heavily attacked with most excellent results.

"Both by day and night our bombing squadrons have continually attacked the enemy's railway junctions and centres of activity, reconnaissance machines have supplied valuable information from both far and near, while artillery machines have been indefatigable in their watch over German batteries and in accurate observation for our own guns. In these latter tasks our balloons have done most valuable work, and have kept pace with admirable energy and promptness with the ever-changing battle line."

(Back from Germany, continued)

McIntosh, Lieut. R. R.
 Madge, Lieut. J. H. C.
 Mathew, Lieut. C. G.
 Osborn, Lieut. C. C. F.
 Palmer, Sec. Lieut. C. H.
 Shadwell, Lieut. L. M.
 Smith, Sec. Lieut. E. A. L. F.
 Smith, Lieut. V.
 Spiro, Lieut. S. G.
 Sutcliffe, Lieut. C. A.
 Wheeler, Lieut. L. F.
 Wigley, Sec. Lieut. L.
 Adams, Lieut. F.
 Alder, Lieut. S. (Sher. For.).
 Baerlein, Sec. Lieut. R. (R.F.A.).
 Baynton, Lieut. G. R.
 Burnard, Sec. Lieut. R. A. (Lond R.).
 Clark, Sec. Lieut. W. R. (Yeo.).
 Cook, Capt. C. W.
 Couston, Lieut. A.
 Cross, Lieut. R. W.
 Fraser, Lieut. A.
 Griffith, Lieut. J. C.
 Grosset, Lieut. W. E. (High. Cyc. Bn.).
 Hills, Sec. Lieut. F. E. (R.G.A.).
 Hills, Sec. Lieut. W. B. (Hamps R.).
 Kaizer, Lieut. M. M.
 Keller, Lieut. C. F. (Lond. R.).
 Kilsby, Sec. Lieut. M. J.
 Kingsland, Lieut. W. R.
 Kirkham, Lieut. F. J. (R.F.A.).
 Macgregor, Lieut. R. R. (R. Scots).
 Mallous, Lieut. C. G.
 Miles, Sec. Lieut. A. A.
 Molloy, Lieut. T. P. L. (Dorset R.).
 Moody, Sec. Lieut. B. C. (Lond. R.).
 Nelson, Lieut. R. C.
 Newenham, Lieut. G. A.
 Parkes, Lieut. G. A. H.
 Robertson, Lieut. G. P.
 Rothery, Lieut. H.
 Sharpe, Capt. T. S., D.F.C. (Glo. R.).
 Shum, Lieut. C. A. R.
 Taylor, Lieut. A.
 Thornton, Lieut. C. P.
 Tidmarsh, Capt. D. M., M.C.
 Ward, Lieut. L. N.
 White, Lieut. T. W.

Australian Flying Corps.

Cornish, Capt. E. W., M.C.
 Feez, Lieut. C. M.
 Flight, Sec. Lieut. O. T.
 McCulloch, Sec. Lieut. A. F. G.
 Nicholls, Lieut. W. H.
 Randell, Lieut. W. B.
 Rintoul, Lieut. A.
 Wearne, Lieut. A.
 Willmott, Sec. Lieut. F. B.

The following R.F.C. officers, who were prisoners of war in Germany, have been released :-

Chance, Lieut. W. H. S. (Worc. R.).
 Faraday, Sec. Lt. M. S. (R.F.A.).
 Hunt, Sec. Lieut. K. F. (Yeo.).
 Sanders, Lieut. J. W. (Middx. R.).
 Whittle, Capt. O. L. (S. Lan. R.).

The following officers have now been released from Germany, and have been retained in Denmark :-

Clark, Lieut. A. L.
 Gray, Lieut. W. J.
 Turner, Lieut. K. K.
 Watts, Lieut. R.

Back from Turkey

The following officers, who were prisoners of war in Turkey, have been released :-

Capt. A. J. Lazarus Barlow, Yeo., attd. R.F.C.

Australian Flying Corps.

Haig, Lieut. F. W.
 Hancock, Lieut. F.
 Poole, H. A. A.
 Vautin, Lieut. C. H.



The Prince of Wales Flies over the Rhine

A MESSAGE from Coblenz on Saturday states that during his visit to the American aerodrome there, the Prince of Wales flew over the Rhine in the course of the morning with Col. Mitchell, who commands the aviation camp.

Chaplain-in-Chief, R.A.F.

THE Rev. H. D. L. Viener, M.A., late chaplain, R.N., who was lent by the Admiralty last year to organise a Chaplain's Department for the Royal Air Force, has been gazetted the first Chaplain-in-Chief for the R.A.F. He is in charge of the Church of England Chaplaincy Service.

To Celebrate Victory

By way of celebrating the victory of the British Empire in the air, a banquet is being given at the Connaught Rooms, London, by the Imperial Air Fleet Committee on January 21. Lord Desborough will preside, and among those who have already accepted invitations are Gen. Sir H. Trenchard, Major Baird, D.S.O., M.P., Parliamentary Secretary to the Air Ministry; Maj.-Gen. Sir Frederick Sykes, Chief of the Air Staff; Maj.-Gen. Sir W. S. Brancker, A.F.C.; Maj.-Gen. Sir Godfrey Paine, M.V.O.; Maj.-Gen. E. L. Ellington, and Sir W. A. Robinson, Secretary of the Air Ministry.

AIRISMS FROM THE FOUR WINDS

ALL sorts of propositions for establishing flying trips and services between seaside towns during the coming season are being submitted to the local authorities. For the moment some of them do not grasp the possibilities of these trips as attractions to their particular town, but that will come, when they find visitors flocking in their thousands to a rival resort, the authorities of which have had a little more go-ahead insight. Ramsgate, for instance, is favourably impressed and wants to know more about it. Then Dover Corporation, although not prepared to actually co-operate in establishing an aerial passenger service between their town and Harwich, is willing to assist in the question of aerial base sites. This is not at this stage an unreasonable attitude, and if only other prominent towns will get a move on in the same direction it would make an encouraging start.

OUR leading aviation construction firms can do more than just make machines to order. They can and do, almost without exception, support deserving causes allied to the aircraft industry. As a very healthy instance, it is gratifying to record the efforts of the employees of the Aircraft Manufacturing Company, Hendon, which have resulted in £367 being handed to St. Dunstan's Hostel as a New Year's Gift—£100 in excess of last year's collection—whilst Hendon Cottage Hospital has benefited to the extent of £200.

It has been queried whether Government assistance will be forthcoming in the direction of meteorological organisation, for those adventurers who may presently try their luck at

crossing the Atlantic by aeroplane, as entrants for the £10,000 *Daily Mail* prize. We can hardly conceive but that the very best information in this respect will be at the disposal of the competitors. Whatever the results, any serious attempts cannot but help forward long-distance aviation, which necessarily is of the most vital importance and interest to this country as a nation.

WAR figures are apt to stagger one's preconceived ideas of what can be turned out by a single firm, when put—literally and figuratively—upon their metal. By way of an object-lesson in this respect, we have a statement from the Lord Mayor of Newcastle, alluding to the War work of Messrs. Armstrong, Whitworth and Co. This firm, in addition to accounting for the construction of 1,075 aeroplanes and three airships, filled up their spare time at their armament and shipbuilding works by turning out more than 13,000 guns, 12,000 gun mountings, 14,500,000 shells, 18,000,000 fuses, 21,000,000 cartridge cases, 47 warships, 22 merchant ships, and fitted with armaments 583 war-vessels. Prodigious!

CAPT. E. A. LUGARD, of Goldhill Manor, Lower Bourne, Farnham, in a letter to the Press, adds his appeal to the checking of the introduction into this country of dogs from overseas *via* the air. In writing of this serious menace, leading to the reintroduction of hydrophobia into England, he writes:—"In regard to the importation of dogs by our men and others from overseas, I am informed

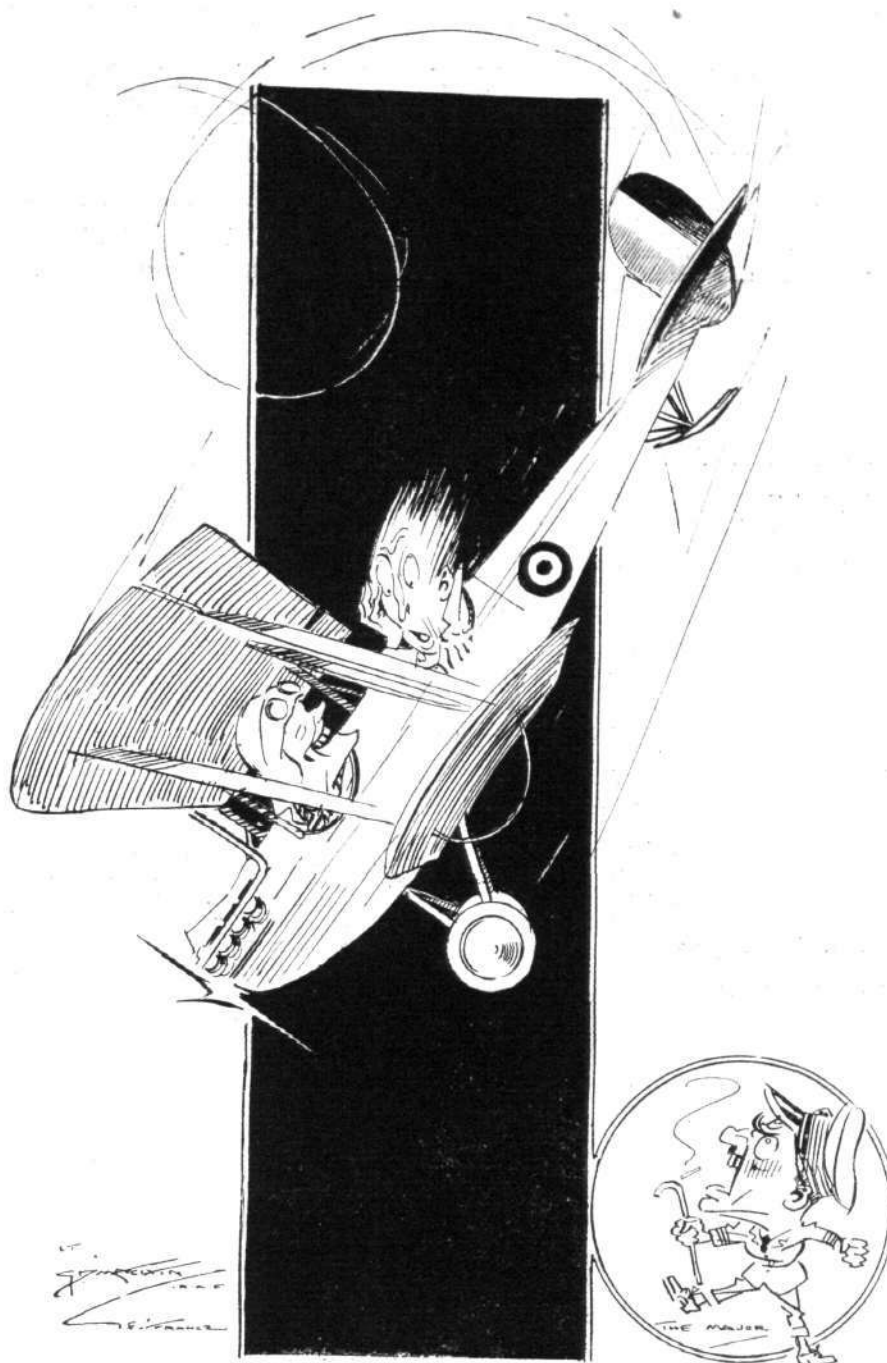


OUR AIRSHIP FLEET.—A rigid unit in the clouds.

Crime in the R.A.F.

that dogs are being smuggled home by means of airships. Can anything be done to secure such dogs at once? I venture to write as I have been keenly interested in dog-breeding for many years. By the sale of my booklet on the bull-terrier in India I realised £53, and this little sum was gratefully accepted by the War Office in Paris for their great ambulance dogs at the front. I am also writing to some leaders in the dog world at home, but this is a matter in which anyone who obtains any intelligence of a dog so imported should be warned to give the earliest information to the nearest police station."

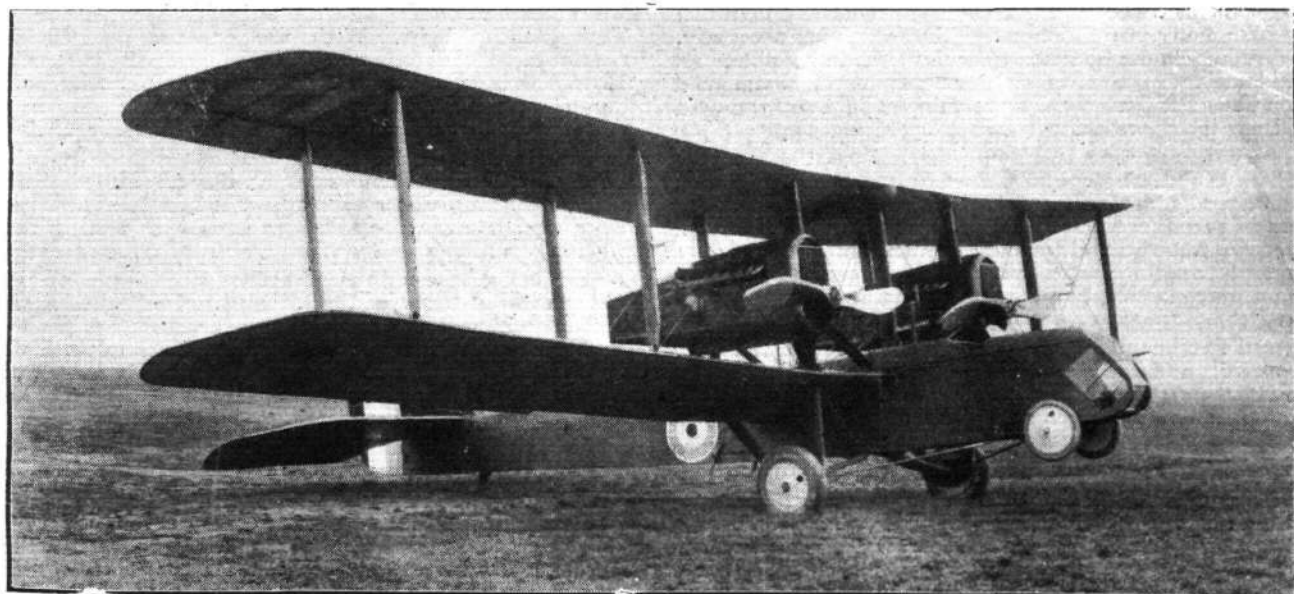
TWO HUNDRED THOUSAND and more people have since November 18 visited the R.A.F. Enemy Aircraft Exhibition at the Agricultural Hall, which finally closes on Saturday, January 18. And thereby the R.A.F. hospitals will materially benefit. We are just wondering what will be the ultimate end of the various highly interesting enemy relics which have so fascinated the public in the galleries of the Islington building. It is to be hoped they will not be relegated to the scrap-heap, but rather they should be offered for exhibition



Stunting in an R.E.Ate.

—for good causes of course—in various provincial cities, where we dare venture to prophesy the R.A.F. hospital fund might derive further material benefit therefrom. No doubt the National War Museum will claim some of these War curiosities, but they could well afford to wait, as anyway those responsible for the Museum are hardly yet in a position to conveniently accept delivery of cumbersome bric-à-brac of this character. It would be a pity to turn them out to grass like unto the Service motor vehicles which have been derelict recently in Cumberland Market.

MANY bargains for those who have the understanding to acquire discreetly should be going in the disposal of "overs" which the Ministry of Munitions from time to time are offering in the open market. In our advertisement columns will be found an official announcement, in this connection, of engines galore, new and second-hand, aeroplanes, spares, tanks, tyres, miles of aeroplane linens in various stages, suitable for shirtings, linings and what-not. Altogether a visit to the Salvage Branch of the M.O.M. at York House, Kingsway, should not be a waste of time, to those really interested.



A BELATED "MILESTONE."—In the tables published last week of AIRCO. machines was included the D.H.10, and general arrangement drawings of this machine were given. The accompanying photograph reached us too late to be included in the "Milestones" series, and is therefore published this week. The D.H.10 shown in the illustration is fitted with two Rolls-Royce engines of 375 h.p. each.

COMMERCIAL AVIATION IN THE LIGHT OF WAR EXPERIENCE

By Major-General Sir F. H. SYKES, K.C.B., C.M.G., Chief of the Air Staff

ON January 7, General Sir F. H. Sykes gave the following highly instructive address before the London Chamber of Commerce, Lord Desborough presiding:—

The subject on which you have kindly asked me to speak is commercial aviation in the light of war experience, and I am proud that it is, I think, the first time that the Chief of Staff of a fighting service has spoken publicly in regard to the commercial aspect of his service. I hope perhaps this departure may betoken a new and helpful method of assisting in the working out and fusion of the efforts of the service and civil side.

Aviation in any form is but a dozen years old, a fact we are all apt to forget.

It is not possible within the time at my disposal to deal with the past and the future, and I propose, therefore, to confine myself almost entirely to the latter. I have, however, had prepared an account of the development and effort of the air forces of the Empire during the War, and this will, I hope, be published before long, and will serve as an introduction to the study of the problems of the future with which I propose to deal to-day. I do not doubt that when the facts are known, the unification of the air services and the creation and the maintenance of an Air Ministry will be amply justified. In the Ministry is concentrated in the written records and in the experience of the various branches, all the data at present existing, not only of Naval and Military, but also the major portion of commercial knowledge, the dissipation of which could only lead to confusion and redundancy.

I believe that air forces have become and will remain a leading consideration in questions of national and Imperial defence. The day is indeed not far distant when aircraft will rank equally with, rather than supplement, other and older forms of war material, and strategy will be profoundly modified.

Peaceful Use for Service Aircraft.—A feature which distinguishes military aircraft from other forms of warlike preparation lies in the peaceful and useful employment to which they, unlike tanks, for instance, are also adapted. They constitute a means of undertaking public and political work of the highest value. They can be employed in opening up far-distant and inaccessible portions of the Empire, in survey and mapping, and in postal and other communication services in districts as yet unreached by private enterprise.

Aviation is now on the threshold of a new existence in the realms of civil and commercial life. The opportunity is unrivalled, the conditions ideal, and we must guide it along right lines. Above all, its progress and development must inspire confidence on the part of the public and the business community. There must be no flash in the pan or exploitation of a new industry by ignorant or unscrupulous persons. If public confidence, either in the safety and security of flying, or in the ability of aviation to take its proper place in relation to other and older-established means of transportation should once be shaken, a set-back may be experienced from which it may take many years to recover. Sure steps are necessary, and no attempt must be made to achieve the impossible.

Consideration of the future development of commercial aviation naturally leads us along certain main lines of thought. First, there is the technical aspect—here we shall pit the brains of our inventors and engineers against those of the whole world, and we have no reason to fear the issue. It is true that in some other lines of inventive work we have left it to others to gather the fruits of our pioneering. In aviation, however, we have gained for ourselves the foremost place in design and technique of aircraft and engines, and British manufacturers may safely be trusted to maintain and improve their position. State assistance in design and research work, it is agreed on all hands, must continue. A policy of "safety" must prevail, and the aerial "Plimsoll" line and the "AI at Lloyd's" must brand every British aircraft with the hall mark of quality and security.

Risks and Danger of Flying.—I would like to make a passing reference to a subject on which there is a very considerable amount of popular misconception. I refer to the risk and danger of flying. This, in reality, is very much less than is often supposed. The improvements which have taken place in the design and construction of aeroplanes and engines have brought us to a position in which, with prudence and judgment, the risks of flying are very small, apart from the danger attached to the process of the training of pilots. Even here, the records of our training organisation clearly

indicate that a considerable proportion of the accidents which occur are due to higher war training in aerial fighting and formation flying and to the arduous conditions under which this training is carried out. Even under these conditions fatal accidents have been surprisingly few, and the average has now reached the high figure of 1,170 hours per fatal casualty.

Some idea of the risks of flying may be gained from the following facts:—Since January, 1916, 3,340 officers have been killed on the Western Front. The strenuous nature of the fighting is well known, and nearly all these have been due to battle and only a small proportion to accidental causes. The total flying done during the same period has been close on 1,000,000 hours, or 114 years.

It is also very satisfactory to note that with the disappearance of the enemy's bullets has disappeared the principal cause of fire occurring in aircraft. I think we may say that under present-day conditions, the chances of a passenger safely reaching his journey's end in a modern machine conducted by a skilful pilot and operated under proper conditions, are not far short of his chances of safe arrival by the older and more familiar means of transportation.

Financial.—I do not propose to deal with the financial aspect, but only to emphasise the necessity of keeping in mind the two independent industries involved: the constructive and the operational, and to indicate that it is necessary to work on the analogy of other forms of transport such as shipping, in which you have the great building firms and the firms which operate the traffic.

Operational Possibilities and Limitations.—In regard to the operational possibilities and limitations of commercial flying, I want, first of all, to make a little official statement and explanation. As you know, all civil flying has been prohibited during the War, and, although fighting has ceased, we are still at war. As Lord Weir announced recently in a public speech, draft legislation for the governance of civil flying is being prepared and is being pushed on with all speed. But the work and difficulties involved are very great, and it is most important that even at the expense of a little delay, a really sound position should be arrived at. At the same time, the Air Ministry recognise fully the necessity of early action, so that the present restrictive orders may be, as far as possible, removed. Otherwise we might easily find ourselves at a disadvantage as compared with other countries in the early development of civil flying.

Interim Regulations for Civil Flying.—It has now been found that this private and domestic legislation depends for its character on the findings of the International Conference, and, to avoid delaying the commencement of private flying in this country, a preliminary set of regulations have been drafted and, it is hoped, will come into force during the first few weeks of the new Parliament.

This brings me, naturally, to the subject of some of the competitions which have been discussed and particularly to the magnificent offer of the *Daily Mail* of £10,000 for the Transatlantic flight. With the enacting of the interim regulations I have referred to, this flight will, as far as Great Britain is concerned, be made open to all comers, including our friends in America.

Transatlantic Flight.—I should like to say a little about what is involved in this particular enterprise. It has long been under consideration at the Air Ministry—not, of course, with a view to the prize—and last June arrangements were seriously commenced with a view to testing the possibility of bringing aerial reinforcements from America and also of being in a position to render all possible assistance to those wishing to make the attempt.

The problem is not so much one of endurance of the machine and personnel but of navigation, meteorology and wireless. I shall say more on these subjects later, but as regards the first, you will appreciate that a straight course must be kept, both by day and by night, in thick or fine weather, in winds whose force and direction it is difficult to gauge in the absence of any fixed points of reference. For instance, a small error in bearing may easily be sufficient to miss entirely so small a point in the Atlantic as the Azores.

The meteorological difficulties are due, first to our lack of knowledge of upper air conditions in the mid-Atlantic, and, secondly, to the fact that the prevailing winds in this area set from west to east. The Atlantic is large enough for a complete low-pressure system to exist in the centre without being discernible or measurable at the sides; and

this not only adds to the dangers of actual flight, but also complicates the navigational problem. A large quantity of meteorological data exists for the mid-Atlantic, but it is all founded on mariners' reports of conditions from sea level.

There is generally a belt of two or three hundred miles of fog around Newfoundland, and, unless a strong westerly wind is blowing, the weather is always changeable, so that it may generally be predicted that when the wind is assisting the flight westwards, the weather is stormy with thick cloud and with rain and mist on the coast of Ireland.

The accomplishment of this flight demands an organisation capable of centralising at the starting point all information about the immediate weather conditions all along the route, in order that the rare opportunities when suitable conditions exist may be seized. This fact, coupled with the complementary fact that existing machines, even if navigated with extreme accuracy, have a very small margin of endurance beyond the distance to be accomplished, has led to the conclusion that this flight should not be undertaken lightly and should be viewed at present as a demonstration rather than a commercial proposition.

Aerial Routes—Organisation and Equipment of.—Dealing next with overland projects; amongst the many branches of the subject, one of the greatest importance will be the selection and equipment of aerial routes. This will be governed partly by geographical and, increasingly, by commercial conditions. Preparations on a large scale and much subsidiary organisation are needed to ensure the success of any chosen route. Landing grounds must be provided and conspicuous marks and indications given. Repair facilities must be established where skilled personnel is available. The stopping places must be linked up with centres of distribution, of postal and other merchandise, and arrangements made for the control of traffic both by day and night.

State Aid.—Here it is that private enterprise will derive the greatest benefits from the work that has been done by the Governments of the countries of Europe during the War. The greater part, however, still remains to be done.

Long-distance Routes.—To take an example; you have probably all read of the recent overland flights between Egypt and India. Here I want specially to emphasise the fact that all the Royal Air Force has had in mind when these long range and special flights have been undertaken, has been in order to blaze the trail and gain experience. The possibilities of this flight, with its bearing on the delivery of mails between England and India, have now been broadly demonstrated. The organisation, however, of the route into one of continuous commercial utility will involve a large amount of work.

Change to Flying Boat.—In good weather a machine starting from London will, doubtless, fly direct to Marseilles without stopping; thence, with a short stop at Piza or Rome, to Taranto. Inspection and minor repairs will here be needed before the machine commences its long journey overseas. The next point of stoppage will be Suda Bay in Crete, where an English aerodrome at present exists. Here again repair facilities are needed. Leaving Suda Bay, the machine proceeds to the coast of Africa at Sollum, a subsidiary aerodrome, where petrol is taken on or minor repairs effected. Then, with a possible stop at Mersa Matruh, the machine proceeds to Cairo. It will probably be advisable for mails here to be transferred to another machine in order that the one which has flown from London may be given a complete overhaul before return to England. Cairo must be considered and equipped as a first-class store and repair base, as it is the half-way house to India.

Continuing our journey, the route lies by way of Damascus and Bagdad, both possessing subsidiary aerodromes and repair facilities. The next point will be Basra, on the Tigris, which will require to be developed if this route is permanently adopted, into a first-class repair and stores base. Next to Bushire and along the coast to Bunder Abbas, India being reached in the next stage at Charbah-Karachi, Hyderabad and Jodhpur are the remaining steps to Delhi.

Base and Repair Facilities.—It will be seen from the foregoing that some 25 aerodromes and landing grounds are necessary on this route. Taranto, Cairo and Basra will require to be equipped with first-class facilities, minor repairs being provided for at Rome, Marseilles, Suda Bay and Karachi. The remaining places need only be capable of providing emergency landing and refuelling facilities. The stages I have described, average some 350 miles each, the total distance, London-Delhi, being approximately 6,000 miles. As to the time that will be required, I think we are justified in looking forward to the approach of a weekly mail service by air between London and India, the time of passage

not exceeding seven or eight days, which would appear to be advantageous from the commercial point of view.

Close calculations and much experience will be necessary to arrive at the cost of operating and maintaining such a service. All we know for certain is that postal rates by aeroplane will be high at first by comparison with present charges. You have to pay for speed. The cheapest and lowest form of transport is, I suppose, by means of a donkey; the quickest by means of the aeroplane. Business men—and there may be some in this room to-day—I venture to predict, will not hesitate to pay high postage rates, perhaps a few shillings an ounce, for urgent letters, with the consequent saving of delay on the one hand or heavy telegraph charges on the other.

Cairo to Cape Route.—Another route of great interest which the Royal Air Force hope to open up, if there is time in the interim period to which I have already referred, is the "All Red" route from Cairo to the Cape. Survey parties have already been sent out from Cairo to report on such facilities as exist, and to secure information to enable an accurate estimate of future requirements to be made. This flight will be undertaken both by flying boat and by aeroplane. In each case the route follows the Nile to Lake Tanganyika. It is hoped to provide landing grounds every 200 miles passing through Assuan, Wadi Halfa, Abu Hamed, Khar-toum, Kodok, Lake No, Bor, Lake Albert, Jinja (Lake Victoria Nyanza), Ujiji (Lake Tanganyika).

The route for the flying boat will then be: Karonga (Lake Nyassa), Blantyre, Beira, Lorenzo Marques, Durban, Port Elisabeth, Cape Town, 5,700 miles in all, and for the aeroplane: Elisabethville, Livingstone, Bulowayo, Pretoria, Johannesburg, Bloemfontein, Cape Town—5,300 miles.

The routes throughout are over British soil, excepting between Lake Tanganyika and Lorenzo Marques, which is Portuguese East Africa; and between Lake Victoria Nyanza and Lake Tanganyika, which was lately German East Africa.

Possibilities of Shorter Routes.—Although it is in connection with long distance work that aviation has most to offer; at the same time it is well not to overlook the possibilities of such routes as London to Dublin and London to Glasgow. In the former case the distance is 288 miles, and in the latter 360. Study is now being given by the Air Ministry to these in connection with their possibilities for urgent mails and newspaper work. Newspaper proprietors may easily find it advantageous to use high-speed aeroplanes for conveyance of copy, stereotypes, photographs and so on between such centres as London, Paris, Glasgow, Dublin, for use in the simultaneous publication of identical issues of their newspapers.

Short-distance Passenger Services.—I should like next to say a few words on the prospects of individual passenger services between large centres separated only by a few hundred miles of distance. We have all been told in the papers how, before very long, business men and others will be telephoning to near-by aerodromes and ordering out their machines to convey them to Paris or Brussels or some other point. Well, there is really no reason why this should not come about. It will interest you, I am sure, to hear what has been the experience of the Royal Air Force in this connection.

Quite apart from the numbers of officers who have been transported to France by aeroplane in machines going out as reinforcements, we established in the summer of this year a small organisation called the Communication Squadron. It was organised on comprehensive lines, and consisted of two flights of D.H.4s. with Rolls-Royce engines and a few other machines, with a personnel of 61 officers and men. Between August and November there were made no fewer than 279 passenger cross-country flights, such as to Paris, Nancy, Dunkirk, Manchester, York and Birmingham, and, I am glad to say, that there has not been a single case of a crash occurring to any machine with passengers on board. Many very distinguished people were transported, including several members of the British, French, American and Dominion Governments; 131 visiting machines were also received and attended to.

On one occasion, two D.H.4 machines were required to transport Mr. Paul Cravath and Mr. Crosby of the American Mission, and a record trip was made to Paris and back on the same day in 4 hours and 20 minutes.

On another occasion a trip was made from Manchester, a distance of 170 miles, in 1 hour and 25 minutes, steering on a compass course above the clouds for a large portion of the distance.

One of the pilots of this squadron, who is over 40 years old, has now flown across the Channel as pilot no less than 287 times, frequently in bad weather.

Another organisation which the Royal Air Force has found

it necessary to maintain has been the single machine Channel ferry from Lympne to Marquise, the establishment of which became necessary in order rapidly to return to England the large number of ferry pilots who were engaged in taking out new machines to France. In this way, it was possible to conduct the general despatch of reinforcing machines to France with a smaller number of pilots.

The results are of interest. During the four months July, August, September and October of this year, 227 trips were made, 8,085 miles crossed and 1,843 passengers transported. Of the 123 days in those four months, cross-Channel flying was possible on 71 days, or approximately 60 per cent.

Operation of Flying Boats.—A few words here on the operation of flying boats from sea bases may not be out of place. One outstanding feature has been the fact that, although there were many engine failures in the early part of the War, they seldom resulted in the loss of the boat and the crew.

They cannot, however, be operated with regularity and ease from an extemporised station, and it must be remembered that all forms of seaplanes are, on the whole, more bound by weather conditions than are aeroplanes, and this disadvantage is intensified if they are not operating from a good harbour. As aircraft becomes larger, there will be a certain amount of levelling up in this respect. As a result of our experience and development during the past four years, we have discovered the conditions under which flying boats can operate with regularity; these are that there should be a properly equipped station, involving large expenditure and slipways, sheds and repair shops. In addition, we must have good motor boats, with experienced crews and ample mechanical assistance for hauling the machines up the slipways. We have just commenced to develop a system which promises to be successful, of operating such craft from specially-designed docking lighters. The flying boat, on conclusion of its journey, floats into a docking lighter which then pumps or blows out tanks and rises in the water, providing sufficient opportunity for minor over-hauls, running repairs, etc., and for an easy start for the next trip.

Operation of Airships.—All that I have said so far has had special reference to heavier-than-air craft, but it may well be that for commercial purposes, the airship is adapted for long-distance journeys involving non-stop flights. The airship has the inherent advantage over the aeroplane that there is practically no limit whatever to its range provided it can be made large enough. The large rigid airship is still in an embryonic stage, but sufficient has already been accomplished to show that with increased capacity there is no reason why they should not be built capable of completing the circuit of the globe. As an instance of what has already been accomplished in the way of a long-distance flight, a Zeppelin airship flew from Jamboli in Bulgaria to German East Africa, carrying 12 tons of ammunition for the relief of a force operating there. Fortunately, on her arrival in Central Africa she was informed by wireless that the force had surrendered. She thereupon set out for home, and reached the base in safety, having been in the air four days without landing.

There need not necessarily be competition with the aeroplane, and the aim should be to undertake such journeys as are unsuitable for heavier-than-air craft. One of their objections has been the great expense of construction of sheds large enough to house the rigid airship of the future and the taking of them in and out of their sheds in anything but calm weather. It is possible that these difficulties may be solved by the method of mooring them to masts or cables, and, if this is successful, the airship would then need only to be taken into the shed for overhaul and repairs, in the same way as the steamship enters dry dock for a periodical refit.

Schemes for the development of the airship for commercial purposes may belong to the future more than to the immediate present. Its possibilities should, however, not be forgotten. Someday perhaps when the problems are solved, and subsidiary organisation has been built up, it may be possible to run a continuous airship service between England and America.

Aerial Survey Work.—While on this subject, it may not be out of place to refer to the very wide scope that exists for the use of aircraft in general mapping and survey work. It is now possible by introducing the necessary corrections for distortion to prepare complete maps showing the fullest detail of any required localities. The advantages of this method in hitherto uncharted countries are obvious; rivers, lakes, boundaries of woods and forests, roads and tracks, land under crops, grazing land, etc., can be accurately surveyed and plotted.

Our atlases need no longer show uncertain and dotted lines to represent the supposed head waters of the Nile or

the Tigris, or the position of lakes, ravines, etc., in such areas. Photography from the air will definitely fix their positions. Preliminary railway surveys in such countries as Australia and Canada will be much facilitated by aerial photography. The contour of reefs, shoals and islands, whether exposed or not, can be far more accurately fixed upon marine charts than by the older methods.

Other Uses for Aircraft.—Even yet I feel sure we have not touched on all the possible commercial uses for aircraft which the future may hold in store. Perhaps even they may be of value in the whaling and fishing industries as allies to the trawlers when they return to their normal business of catching fish instead of mines.

Organisation.—I come now to the next great division of the subject of commercial aviation, the organisation and "machinery" which will be so necessary to the successful operation of commercial flying. During the War a great amount of experience has been gained, and though it is true that the conditions of war and peace differ widely, and that the most economical methods may not always have been adopted, certain fundamental conditions have become apparent, which will undoubtedly govern commercial flying in the same manner that they have governed war flying.

R.A.F. Experience.—It is here that the experience gained by the Royal Air Force will be of inestimable value to commercial aviation. They are indeed, so far as this country is concerned, the sole experts upon the subject, and their work must form the foundation of commercial aviation practice.

Difficulties to be Overcome.—I want to say a few words about the many difficulties which will have to be overcome in fully developing air routes. Firstly, there is the International Conference with regard to aviation, about which I have spoken, but even when agreement has been reached, much diplomatic machinery remains to be set in motion before Aerial services can be actually started. The Royal Air Force has lately been engaged, for instance, in preparations for a postal service across the North Sea, but in regard to these, as we are still legally in a state of war, there is, for instance, the difficulty of the three-mile territorial water limit, upon which agreement must be reached. For overland routes, aerodromes must be constructed or improved and stores of fuel and other necessities provided, and some of the places I have mentioned are typically difficult of access by land.

State Aid in Developing Routes.—Those questions can and will be solved, but it is clear, I think, that international aerial routes cannot be developed unaided by the State. Private enterprise is apt to chafe at the restraint and interference of Government control, but in the case of commercial aviation, it will grow, I hope, to regard the State as a senior partner, and, at that, by no means a sleeping one; an unusual form of partner, however, in that while bearing much of the responsibility, none of the profits are claimed.

Meteorology.—One of the most important of the attendant problems to be solved is the influence of the weather on the operation of any flying service. At present, the weather still is the great natural enemy of aviation. That it will before long be fully conquered there is very little doubt, but the development and improvement of the meteorological facilities of the country is a matter of the first importance. Flying has developed the use of meteorological information to an enormous extent. Whereas before the War one was content with looking at the weather report in the paper and glancing at a wind cone on the aerodrome before starting, now practically every station is equipped with a weather office, and every pilot or aerial navigator before proceeding on a flight ascertains the direction and strength of wind at various heights at his station, at the station he is about to proceed to and over the locality he will pass through. He will enquire at what heights are the clouds, what visibility he may meet with, and will, in fact, know what weather conditions lie before him at each stage of the journey. The study of the wind met with at great height is being taken in hand very seriously, and the solution of this problem is essential.

Forecasts.—It has been found that the issue of forecasts from one Central Bureau to districts of large area is unsatisfactory, and the system has been developed of issuing from the Central Bureau not forecasts but technical information which will enable local officers of the Meteorological Service to deduce local forecasts for their districts. Besides, it is necessary not only to forecast the arrival of storm or fog, but to estimate closely the time of its arrival in any particular locality.

There are at present 31 Royal Air Force Meteorological Stations in the United Kingdom alone, and there seems every likelihood of this number increasing rather than

decreasing, if the Royal Air Force is allowed to continue the control of this service which is so important to aerial navigation and pilotage.

An interesting fact is that a night service is often less liable to suspension owing to unsuitable weather conditions than a day-service. For instance, it would probably be possible to make a trip from London to the Rhine on 100 days, and on 130 nights of the year; in June, three or four times each week, and during the winter months, one trip a week.

The maintenance of any regular long-distance service such as this necessitates a complete network of meteorological stations.

Navigation.—Closely connected with the subject of meteorology is one of equal importance—aerial navigation. Here also great progress has been made, especially in navigation in fog and misty weather. At the commencement of the War the only instruments available for navigation were the compass and map. Since then compasses have been much improved and many other instruments developed. The aerial navigator has to work under difficult conditions. He is in a confined space and navigates a craft whose speed is double or treble that of water craft. In place of tidal currents he has to contend with the winds of anything up to 50 miles per hour; changing in direction and velocity at different heights, and carrying his craft with them at their own speed and direction. The inadequate methods resulted in pilots losing themselves and accidents occurring.

The first step forward was an instrument to determine the angle between the direction in which the machine was pointing and the direction of her path over the ground. This instrument also gave the actual speed of the machine, and by its aid course could be set, the force and direction of the wind found roughly, and fairly accurate navigation became possible as long as the ground could be seen.

Flying through clouds still remained a matter of much difficulty owing to the entire loss of all sense of direction, until the introduction of the turn indicator, an instrument designed to show on a dial the slightest turning movement of the machine, the indications being obtained by balancing the relative velocity of the tips of the wings.

Experiments are being made with aerial sextants for taking astronomical observations, and under favourable conditions there is every probability of these being of use. At present, however, it is only possible definitely to fix the position at dusk and dawn.

Directional Wireless Telegraphy.—The development which will be of the greatest use for enabling machines to fly in all weathers, is the direction finding wireless apparatus carried in aircraft for ascertaining the bearing of ground wireless transmitting stations. This method is at present secret and was developed in the service during the War. It may be claimed that it will probably be one of the greatest factors in facilitating and increasing the safety of flying overseas, and above the clouds. Aircraft so equipped can fix their position frequently, can report to their base at any moment where they are, what course they are steering, or if they are in any difficulty. A good example of the use of directional wireless telegraphy is seen in the recent test flight of a large aeroplane from London to Paris, in which an aerial navigator gave all directions as to steering, and stated periodically where the machine was without ever looking out. The route included passing over several towns not in the direct line between London and Paris. Paris was reached in a fog within five minutes of the time calculated by the navigator. On the return journey the officer, on stating the machine should be over Brighton at that moment, was found to be less than one mile away from that town.

The ground transmitting stations are, in fact, a form of aerial lighthouse or beacon unaffected by fog, and with a range of visibility of 600 or 700 miles. Their cost will be high, perhaps in the neighbourhood of £60,000 or £70,000 per station, but for aircraft they are primary requirements. They will, moreover, be useful for news transmission, and also be a help to shipping in foggy weather and when astronomical observations are impossible on account of clouds. It is, to my mind, essential that the development of both meteorology and wireless telegraphy should take place along broad Imperial lines. British aircraft will soon be as widely spread as is the British Empire.

Air Charts.—Another indispensable adjunct to aerial navigation, the development of which cannot be neglected, will be the preparation of specialised air charts. Aerial survey of all air routes will have to be undertaken. This will provide exceedingly useful work for the large number of small airships at present built or building, and for which work they are most suitable. They will mark upon existing maps all

features recognisable from the air and suppress unnecessary information. Frequently, second or third-class roads which are often hardly marked on land maps, are those which show up most in the air, whereas the first-class roads, always prominently indicated, are frequently nearly invisible owing to their being tarred. Woods and forests, aerodromes, ground signals, lights and beacons must be shown on these air charts, and notices to airmen as regards landing grounds together with repair facilities indicated. All this will involve a great deal of work, but must be undertaken for the benefit of aerial navigation as a whole, and will probably have to be centred in a special department of the Air Ministry, whose business will be to supply aerial maps and to issue notices and flying instructions to airmen.

The international aspects of this question must not be overlooked, and the business of the International Aerial Conference must assuredly include the determination of international standards in this matter.

Aerodrome Management.—Aerodrome selection and management is another wide and important subject. For training purposes at home, 160 acres is usually sufficient, providing the air approaches are good. Slight undulations have not proved a serious drawback, provided the ground is well drained. Proximity to a station, access to the Post Office for the telegraph and telephone are important factors. Whenever possible, building accommodation for the machines, etc., is placed in the middle of the longest side, minimising congestion on the ground and enabling machines to be landed near the entrance to the sheds. Flying gaps must be arranged on all four sides of the aerodrome, so that landing is equally possible from all points of the compass. Aerodromes used by highly skilled pilots can be considerably smaller, and, though the rectangular shape is probably ideal, "L" shaped ones are frequently made use of. Attention should be paid to the actual surface of aerodromes required for use by small machines and for the heavier types strong sward is essential.

Control of Aerodromes, Day and Night.—The organisation of aerodromes for operating commercial services, both by day and by night, is a subject upon which the experiences of the Royal Air Force are of value. By day, the problem of traffic control is relatively simple, though, of course, very definite rules and methods must be adopted. But it is by night that the problem is presented in its widest form. If we are successfully to develop commercial aviation, flying by day and night must be of equal security and comfort, just as is now the case with land and sea transport.

I think, perhaps, the extent of the problem and the methods adopted for its solution can best be visualised if I give you a short account of the procedure employed almost nightly by the Royal Air Force in conducting their bombing raids over the German lines. Subtract the enemy and his attendant complications from the picture, and you have a scene of a future aerial Clapham Junction by night.

Description of Night Raid.—Let us say a raid is to take place to-night, and the orders have been issued by the commanding officer. I will only deal with what takes place after the machines are wheeled out of their sheds ready for action. From this point every machine and crew come under the orders of the raid officer who controls the operations of starting up; moving off; getting away; signalling from ground to machines while in the air before proceeding, and on return from the raid; landing the machines and moving them back to their sheds. The raid officer must be on the alert for emergencies, which are part of every raid. Something may happen out of the routine laid down, and if the machines are not properly controlled, an accident results. He takes his position on a raised platform with a few men attached to him and controls the whole aerodrome either by telephone or visual signalling. He has telephones and electric switches controlling flare-lines and searchlights, complete Morse signalling outfit, and Very's pistols with coloured lights. In case of breakdown of all the electric and signal services, he has rockets which he uses as emergency signals.

First, he gives the distinguishing letter, by visual signal, of the machine to start first. Just as she moves off, he throws in the switch of the flare-line and the machine takes off up the flare-line. By this time a second machine, or a number of machines may have been signalled for and are moving in their proper order to the foot of the flare-line, but do not proceed until given the clearance from the raid officer on the control platform. This clearance is never given until the preceding machine is well clear of the aerodrome. If a machine fails to get away in her proper sequence the next machine takes her place, and she waits till the last.

Sometimes, after a machine leaves the ground, trouble develops and she is forced to land; she notifies the raid officer by a Very's light. The raid officer then, if the flare-

line is clear, gives her right of way to land as soon as possible.

On returning from a raid, if the machines come in singly, the question of landing them is fairly simple, but if, on the other hand, the machines return all together, the question is much more complicated. When, as sometimes happened, 10 machines and upwards were flying round waiting to land, possibly some with trouble or wounded on board and enemy machines about, the matter became an emergency operation, requiring an extremely cool head on the part of the raid officer. First of all, he decided whether he could land the machines on his own aerodrome, or whether to send them elsewhere. If he decides to land them, he keeps them up until he has made certain that the flare-line is clear of all obstructions such as bomb holes, etc., and then picks the machines out, one at a time, by their own distinguishing letter and lands them, giving preference always to machines which signal that they have trouble in any way.

If a machine stops on the flare-line, all others must be warned not to land until either the flare-line has been moved or until the machine in question has been towed clear of the line. Sometimes it is necessary to move the flare-line to avoid crashed machines, etc. On large aerodromes, two or more flare-lines are sometimes used.

The process outlined above may seem easy, but when it is considered that often the work had to be performed on a pitch black night with no moon, and it was impossible to show even a match, as the enemy was sitting above waiting to bomb the first light that was shown, the matter became delicate and tricky. Fortunately, these little handicaps will not trouble us now, but it is clear that in aerial traffic control there is scope for organising ability and development.

Minor Points of Aerodrome Management.—There are many other minor points of aerodrome management upon which the experience of the Royal Air Force will be of use. The system, for instance, of handling petrol in two-gallon tins, which has generally prevailed throughout the War in France, has been replaced at home, at many of the permanent aerodromes, by bulk storage in underground tanks and pipe distribution, with consequent economy in man power.

The lighting of aerodromes by night has also undergone considerable development. Paraffin flares have been found exceedingly satisfactory as the lighting penetrates mist and fog well. They require very little attention, and so far have proved the simplest and most economical form of aerodrome light yet used. Probably, the best light for commercial work will be afforded by some form of flare in which paraffin and air are developed by pressure at a jet. In some cases small light-houses have been used to flash various code letters and signals. Other small searchlights are used at many aerodromes to light up the path along which a machine is actually landing and are switched off and on as required.



The Ipswich to India Flight

THE Handley-Page aeroplane in which Gen. MacEwen started from Ipswich to fly to India, and which was detained by bad weather at Mersa and Matruh, arrived at Heliopolis on January 3. It resumed its journey from Cairo on the morning of January 12.

The Sydney-London Air Service

THE Federal Government has declined to register a company formed to promote air services between London and Sydney, says *The Times* correspondent in the latter place. He adds that Mr. Watt has issued a statement implying that Mr. Hughes has arranged with the British Government for a Government monopoly.

French Air Minister Resigns

It was announced in Paris on January 9, that M. Dumesnil, Under-Secretary of State for Aviation, has resigned, primarily in consequence of the decision of the Government to bring naval and military aeronautics under the Ministry of War. Ill-health is also given as one of the reasons for M. Dumesnil's resignation. M. Clemenceau has expressed his regret that owing to the re-organisation of the War Ministry it has become necessary for M. Dumesnil to relinquish his duties, and says that M. Dumesnil had succeeded in equipping France with an aviation service worthy of her Army.

The French Air Service

From information given out in Paris it appears that when the war started the French Aviation Service consisted of 21 squadrons, with 321 pilots and a total personnel of 4,342. By the end of 1917 the personnel had increased to 75,105, the pilots numbering 6,417 and observers 1,682. The aviation programme of July, 1918, brought up the number of machines to more than 6,000. The credits voted for the

Kite Balloons for the Marking of Aerodromes in Fog or Bad Weather.—Kite balloons of medium size are expected to prove very useful for the marking of aerodromes, both by day and night in foggy or misty weather. They will be run up when required 2,000 or 3,000 ft., and will be visible for many miles to aircraft flying above the fog, and will greatly help landings in such weather.

Personnel.—A word must be said of the personnel that must arise to do justice to the commercial possibilities we have been considering. One frequently hears the opinion expressed that in the future the pilot of the aeroplane will correspond to a driver of a car. This I regard as a fallacy; a much higher type of intelligence and a much higher type of courage is and will be required for aircraft than for any form of land transport. A pilot is something more than a mere driver; he must be something of an engineer, using the term in its broadest sense. He must be the type of man who has got weather, navigation, machinery and speed in his bones. Though not necessarily a trick flyer, he will certainly need as much courage as is required for trick flying. A good pilot should possess the faculty which enables men to make mental calculations or to reason rapidly from cause to effect—in other words, he must not get flurried. He requires, in fact, the qualifications which go to make successful seamen and horsemen. I could imagine the ideal pilot for important commercial work would be one who, having served his apprenticeship in a sailing vessel, passed in navigation and worked in steam, had joined the cavalry at the beginning of the War, transferred to the Air Service, and has been employed on long reconnaissances and long-range night bombing raids.

Fortunately, there are many even of the ideal type I have mentioned, and a much larger number who possess one or more of the qualifications. History goes to show that the British race possesses naturally all the characteristics of the ideal commercial type of pilot in a latent form, and just as the Elizabethan seamen and the buccaners of a later date prepared the way for the race of modern merchant seamen, so the war pilots of to-day have paved the way for the evolution of a British Merchant Air Service.

The period of transition in which aviation in this country, and, indeed, all over the world, is at this moment a very difficult one, both for those who are waiting impatiently to put into practice their plans for commercial development, and also for those who have held aviation in their grip for the last five years, and who are now about to relax it.

I have indicated some of the steps that are to be taken to place aviation on a proper commercial basis, and I want to assure you once more that everything possible is being done by the Air Ministry to hasten matters forward and to mature plans for the transition of aviation from a war to a peace basis with the least possible delay and confusion.

French Aviation Service in 1914 were just over two and a half millions sterling. This sum was quadrupled in 1916, and by 1917 had exceeded 13½ millions.

Dutchman's Bravery Rewarded

THE King has been pleased, on the recommendation of the President of the Board of Trade, to award the Silver Medal for Gallantry in Saving Life at Sea to Cornelis van den Heuvel, coxswain of the lifeboat at Cadzand, Holland, and to Jac. Misielje, Jac. La Gasse, J. C. Gales, I. Colpa, A. Bos, E. Dyselnyck, and B. Daelman.

On August 16 last a British aeroplane containing two officers was badly damaged by anti-aircraft guns over Zeebrugge. Van den Heuvel observed that the machine was in trouble, and ran and informed a Dutch medical officer in case his services were needed, and this officer telephoned to Oostburg for a motor-ambulance. In the meantime van den Heuvel called for volunteers to man the lifeboat, and the other men named above responded to his call. The damaged machine was well within the line of Dutch territorial waters, and was still being attacked by two German planes. Van den Heuvel accordingly shouted to the coast battery to open fire, and the Germans then hurried away.

The British machine was unable to make the beach, and was obliged to alight on the minefield off Cadzand, with the upper plane flush with the surface of the water. Notwithstanding the great risk incurred, the lifeboat then proceeded to the rescue of the two occupants, one of whom was found to be badly wounded. The injured officer was gently drawn into the lifeboat, in an almost unconscious state, while another boat, belonging to a patrol steamer, rescued his companion. The injured officer was rowed ashore, and was then driven to Oostburg, where his arm was amputated the same evening.

CORRESPONDENCE

The W.R.A.F. Mal-administration

[1971] Some time ago I wrote you with reference to my having been "turned down" at Eltham Training College as an officer in the W.R.A.F.

The sequel to this occurred on New Year's Day when I was brought before the magistrates at the Manchester City Police Court charged with being an absentee. I defended my own case with the enclosed statement. When I had concluded my defence the Clerk turned to the W.R.A.F. officer in the witness box and said: "Did you know of these circumstances and this official letter?" To which she replied "No," which was untrue as she knew all about it.

After consulting with the magistrates (there were five) the Clerk with a contemptuous gesture said "The Bench unanimously dismiss the case." "Miss Parker you are discharged."

The officer brought two escorts from Scotland to take me back, when I still refused she brought a sergeant of police and a policeman. I was allowed out on bail for £20.

You are quite at liberty to use this letter if you wish.

I was charged with being an absentee from the 19th December, 1918—as I had previously been given leave until the 18th (King's grant for Home Services).

(Signed) L. PARKER.

Halifax, January 5, 1919.

(Enclosure.)

The reasons for which I have taken this step are two. In the first instance it is one of necessity, in the second instance is one of principle. In June, 1918, I was passed by Selection Boards and Medical Boards as a suitable candidate for a commission in the W.R.A.F. On the paper notifying me of my appointment it expressly stated that I should be required to undergo a period of training for three weeks. Two weeks were to be devoted to attending lectures on administrative work and one week had to be spent at a camp. This period might be extended if the authorities thought fit to do so.

I was called up for training on August 6, 1918, at Eltham Training College.

At the end of 10 days which had been spent in attending lectures and drills the course was brought to an end, and we were required to sit for an examination. Myself, with a number of other candidates were informed the following day that "our training having proved unsatisfactory the W.R.A.F. could not utilise our services" and we were given no reason for this rejection. The following day the Commandant-in-Chief requested the unsuccessful candidates to go to the W.R.A.F. Headquarters in London, and she expressed her regret at our "bad luck," and said if we would go to camp as N.C.Os. at the end of a month a report would be asked for on our work, and if satisfactory, we would be sent to the next training course. With several others I consented to join the W.R.A.F. on these conditions. When I had been stationed in camp six weeks I wrote a letter to the Commandant-in-Chief requesting that I should be sent for my second course as promised. This letter was returned by the Wing Adjutant with a "chit" attached stating "This candidate must wait for a vacancy." I again sent in a letter to the Commandant-in-Chief, this time with a letter of recommendation from my Officer, asking that I should be sent at an early date. This is four months ago and I have had no reply. As I had given up a post of £130 per annum and had also been to a considerable expense in going to London twice for Selection Boards and training, and as now I am only getting 17s. 6d. per week, I was not able to meet my financial liabilities. I applied to the local commissioner for Civil Liabilities, but was

told the scheme was for "men only." My friends wrote to the Commandant-in-Chief and I was informed that action had been taken in a letter to the Officer Commanding the North Western Area. But I have heard nothing about it. The Armistice was signed and recruiting was stopped *pro tem.*, also training courses for officers. I applied at once for discharge on grounds of "Urgency." About 10 days after I sent in this application I went to the "Wing" to see the Adjutant, to ask him if he would kindly hurry up my discharge. He had not even troubled to send it to the Group. It is now seven weeks since I sent in this application.

During the last few weeks I have applied twice for leave, without pay, pending discharge in order to take up a remunerative post, to meet my financial liabilities caused by my being inveigled in the Service by a method if adopted by a private firm would be called sharp practice. Both these applications were refused. I then sent a letter to my officer stating that I refused to return to the service of the W.R.A.F. as an N.C.O. and that I was quite prepared to defend my action in a civil court. I also wrote to the Commandant-in-Chief stating my reasons for this action and asking her to intercede on my behalf, as I should not have joined the W.R.A.F. had I not been assured by Miss Douglas-Pennant that I should be granted a commission at the end of a month. The reply to this letter is as follows:—

Air Ministry,
December 21, 1918.

Dear Madam,

With reference to your letter dated December 20, 1918, I am directed to inform you that your discharge certificate was forwarded to your Unit on December 11, 1918. The delay is regretted, but unfortunately your number was omitted when the application was made and the Officer i/c Records was not able to trace you.

Yours faithfully,
E. R. HAMILTON,
Assistant Commandant, W.R.A.F.

[The mistake may I add, was on the official side, as I had never been supplied with a number.—L. Parker.]

[If this correspondence is read in conjunction with our Editorial Comment on the administration of the W.R.A.F., we believe our readers will readily agree with us that there has been, and still is, serious need for a full enquiry into all matters connected with the Force.—ED., "FLIGHT."]

The Phoenix Cork Flying Boat

[1972] In your issue of January 2 we note you publish an illustration and description of what you term "A Promising Flying Boat" built by the Phoenix Dynamo Co. We would point out that so far as this boat is concerned, and also a second boat of the same type, the whole of the construction of the hull was carried out by our allied firm, Messrs. May, Harden and May, Ltd., in conjunction with the Technical Department of the Air Ministry, at our experimental works at Hampton Wick, Kingston-on-Thames, under the supervision of our Mr. Harden, who has been responsible for the construction of many of the new types of flying boats, amongst them being the first and second of the large experimental Porte boats in 1914-1915.

I think it is only right to draw your attention to this fact.

THE AIRCRAFT MANUFACTURING CO., LTD.
G. HOLT THOMAS,
Managing Director.

January 10.

50 hours, while the distance was estimated to be between 3,600 and 4,000 miles.

A Sunset Airway

AMONG several projects for commercial aviation which are being advocated in the Dominion of Canada is one for a "sunset airway" to be established by the Government between St. John's, Newfoundland, and the Pacific Slope.

Dinner in an Aeroplane

By way of celebrating Thanksgiving Day, a party of seven prominent members of the Aero Club of America, including Mr. Alan R. Hawley, the President, partook of a typical turkey dinner on board one of the twin-engined Handley-Page machines which are now engaged in the New York to Chicago mail service. The machine was piloted by Capt. Waller, R.A.F. A message was sent to President Wilson and the chief officials of the Government.

An Airship Mishap

WHEN passing over Mid-Calder, West Lothian, on January 8, trouble was experienced with the engines of an airship, which drifted in a westerly direction until it came into contact with some trees, with the result that the envelope was punctured and the airship was wrecked. Fortunately the crew were able to land uninjured, and a party of soldiers took charge of the wreck.

4,000 Miles Across U.S.

ACCORDING to a message from Washington, four U.S. Army aeroplanes which left San Diego, California, on January 4 arrived on January 7 at Bollingfield, near Washington. The purpose of the trip was mainly to locate suitable landing places for future trans-Continental flights, and to map an air route across the southern part of the country. During the journey, 20 stops were made, the aggregate flying time was

PERSONALS

Casualties

Flight-Lieut. JOHN ECKFORD GOW, R.A.F., previously reported missing after aerial combat, now known to have died of wounds on July 1, 1918, at the age of 19, was the second son of John Eckford Gow, Inspector, Inland Revenue, Kingston, Canada, and Agnes Taylor Gow, and grandson of the late James Gow, of Windsor, Ontario, District Inspector, Inland Revenue, and of the late Rev. John Eckford, of Edenbank, Dunkeld, Ontario, formerly Minister of the U.P. Church at Newbigging, Forfar.

Sec. Lieut. J. S. KING, R.A.F., previously reported missing in France, October 1, now reported killed, was the only son of the Rev. W. R. C. King, Cholderton Rectory, Salisbury.

Sec. Lieut. LEICESTER F. STRUBEN, 7th Dragoon Guards, attached R.F.C., previously reported missing, now believed to have been killed in an air fight over the enemy lines on November 16, 1916, at the age of 23, was the only surviving son of Mr. and Mrs. Fred. P. T. Struben, Splitchwick Manor, Ashburton, S. Devon.

Sec. Lieut. H. P. TURNBULL, R.A.F., killed in action near Lille, was the son of Mr. D. Lowe Turnbull, M.A., Denesyde, Portobello.

Lieut. CHRISTOPHER YOUNG, R.A.F., who was previously reported missing, now known to have been killed on July 29, 1918, aged 27, was the elder son of the late E. C. Young and Mrs. Young, Southampton.

Capt. LAURENCE HINGSTON LINDSAY YOUNG, 1st Royal Scots Fusiliers, attached R.A.F., eldest son of the Rev. Dr. and Mrs. H. Lindsay Young, of the Vicarage of St. John's, Portsea, graduated B.A. at Trinity College, Dublin, as Junior Moderator in History and Political Science in 1913, and obtained therefrom a university commission in the Army. He served in India; since 1915 on the Western front, and was wounded by shell at the Battle of the Hooze. Subsequently he received wounds from which he died on Christmas Day.

Capt. PHILIP EVERARD GRAHAM MARSH, M.C., R.A.F., who, with his mechanic, was killed by a collision in the air while flying at the Feltwell aerodrome on December 20, was the only son of Major H. G. Marsh, 19th Hussars (retired), and Mrs. Marsh, of Danes Vale, Wethersfield, Essex. Capt. Marsh was educated at Lancing, and got his commission from Sandhurst in August, 1914. He served in France with the A.S.C., won the M.C., and was mentioned in despatches. He was then for a short time with the Border Regt., and afterwards transferred to the R.A.F. He was instructor at the Feltwell aerodrome at the time of his death. Capt. Marsh was only lately married. The funeral took place on Christmas Eve at Wethersfield Parish Church.

Lieut. F. REGINALD STEELE WAKEFORD, R.A.F., who has died in hospital at Cardiff after a lingering illness, was the second and only surviving son of Mr. and Mrs. H. S. Wakeford, Meadow View, Penarth. Joining the Engineers early in the War, he was gazetted to the Glamorgan Yeomanry, and on his departure for France was attached to the Lancs. Fusiliers, and had 18 months' fighting. He then transferred to the R.A.F. and obtained his observer's wing. During six months' flying he had many encounters with enemy airmen, many of whom he brought down, and was also in several bombing raids over Germany.

Sec. Lieut. W. G. WILLIS, R.A.F., killed by an accident while flying in France on January 4, aged 19, was the elder son of Mr. and Mrs. Charles Willis, The Moorings, Rochester.

Married

Capt. ROBIN HALL, R.A.F., eldest son of Dr. and Mrs. Hall, of Belfast, was married on January 1, at St. John's, Holland Road, to ELSIE, daughter of Mr. and Mrs. GERALD ROUTLEDGE, of Glazbury Road, West Kensington.

Mr. RAYMOND J. JACOBS was married on January 8, by special licence, at Richmond, Surrey, to VERA, elder daughter of Mrs. ERNEST DAVIES.

Lieut. GODFREY HORACE REGINALD PRICE, 48th Squadron, R.A.F. (invalided), only son of G. W. Price, of Forest Hill, Oxon, was married on January 2, at St. Bartholomew's,

Winchester, to EVELYN HAYES, only daughter of the late Dr. MONTAGU H. C. PALMER, of Newbury, and Mrs. Palmer, Aigal Cottage, Winchester.

Capt. LOUIS BRUCE STRINGER, R.A.F., Med. Service, second son of Mr. Justice Stringer and Mrs. T. W. Stringer, New Zealand, was married on January 1, at St. James', Freiston, to MAUD, third daughter of Mr. and Mrs. JOHN GRANT, of Freiston, Boston, Lincolnshire.

Major N. V. WRIGLEY, R.A.F., was married on January 7, at St. Stephen's, Sydenham Hill, to KATHLEEN, younger daughter of the late Mr. and Mrs. J. R. HOWARTH, of Freshfield, Lancashire.

To be Married

An engagement is announced between Major CHARLES E. BRYANT, D.S.O., 7th Hussars (late 12th Lancers) and R.A.F., and GILLIAN MARY, widow of Capt. L. S. PLATT, 17th Lancers and R.F.C.

The engagement is announced between Capt. RONALD LOUIS CHARTERIS, R.A.F., son of the late Capt. the Hon. Frederick William Charteris, R.N., and Lady Louisa Charteris, and Mrs. JAMES VALENTINE, widow of Lieut.-Col. James Valentine, R.A.F., D.S.O. Mrs. Valentine is the daughter of the late Major-Gen. G. W. Knox, C.B., and Lady Sybil Knox, and a niece of the Earl of Lonsdale.

The engagement is announced of Capt. CHARLES HUBERT RICHARD COCUP, R.A.F. and Lond. Irish Rifles, son of Mr. and Mrs. H. C. H. Cocup, of Rosherville, Gravesend, to MARJORIE ANNIE ELIZABETH HANMER-STRUDWICK, second daughter of the Rev. Charles and Mrs. Hanmer-Strudwick, of The Vicarage, Whetstone, Leicester, and granddaughter of the late John Cottrell Hanmer-Strudwick, of Stratford Park, Gloucestershire.

An engagement is announced between Capt. LESLIE CARR GAMAGE, M.C., London Regt., second son of Mr. and Mrs. A. W. Gamage, Eaton Mansions, Sloane Square, and Grange Farm, Chesham, and Miss MURIEL ELSIE HIRST, eldest daughter of Mr. and Mrs. Hugo Hirst, Springmead, Fitzjohn's Avenue, N.W., and Fox Hill, White Knights, Reading.

The marriage between Capt. H. G. HALL, D.S.C., R.A.F., elder son of Dr. and Mrs. C. Herbert Hall, of Park House, Watford, and NANCY, only daughter of Mr. and Mrs. L. N. JEANS, of Eastleigh, Watford, will take place at St. Andrew's Church, Watford, on Wednesday, January 22, at 2 o'clock.

The engagement is announced between Lieut. T. DOUGLAS LEWIS, K.O.R.L. and R.A.F., youngest son of Mr. and Mrs. Frand Lewis, Newport, Mon., and DOROTHY HAMILTON WARDEN, daughter of Mrs. Maltby, Bexhill, and granddaughter of Mr. Arthur Warden, Edgbaston, Birmingham.

Items

It was announced in the *Court Circular* on January 14 that the LORD WEIR had an audience of the King at Buckingham Palace and delivered up the Seal of Secretary of State for the Royal Air Force.

The Right Hon. WINSTON SPENCER CHURCHILL, M.P., received the Seals of Office, took the oath and kissed hands upon appointment as Secretary of State for War and the Royal Air Force.

The Right Hon. ANDREW WEIR was sworn in a Member of H.M. Privy Council, took the oath and kissed hands upon appointment as Minister of Munitions and Supply.

Any information with regard to the fate of Sec. Lieut. H. C. CURTIS, R.A.F., and his observer, Mr. F. G. DAVIS, who were reported missing from the district east of Peronne on August 21, will be gratefully received by Mr. T. Curtis, 41, Fonnerau Road, Ipswich. They were on a D.H. 9, No. 112, which was supposed to have landed intact in German lines.

If anybody can give any information concerning Sec. Lieut. B. J. McCUTCHEON, pilot, and Lieut. V. S. GRAY, observer, 48th Squadron, flying Bristol Fighter D8061, missing August 8, Somme battlefront, probably between Villers Brettoneux and Chaulnes, they are asked to write to McCutcheon, 16, Philpot Lane, London.

THE ROYAL AIR FORCE

London Gazette, January 7

The following temporary appointments are made at the Air Ministry:—
Staff Officers, 2nd Class.—And to be actg. Maj. whilst so employed, if not already holding that rank:—Sec. Lieut. (Hon. Lieut.) (actg. Lieut.) P. M. Greenwood; Dec. 18, 1918. (P.) Capt. (actg. Maj.) A. Murray; Dec. 16, 1918.

Staff Officers, 3rd Class.—(P.) Capt. H. de B. C. Garfit; Dec. 10, 1918. (Q.) Lieut. (actg. Capt.) J. M. Bell, and to retain his actg. rank whilst so employed, vice Sec. Lieut. (Hon. Lieut., actg. Capt.) C. M. Hennell; Dec. 11, 1918 (substituted for notification in *Gazette* Dec. 10, 1918).

The following temporary appointments are made:—
Staff Officers, 1st Class.—J. M. Home (Bt.-Col. in Army), and is granted a temp. commn. as Col.; April 11, 1918, with seniority from April 1, 1918 (substituted for notification in *Gazette* May 3, 1918, p. 5365).

Staff Officers, 2nd Class (Higher Grade).—And to be actg. Maj. while so employed, if not already holding that rank:—Capt. (actg. Maj.) A. D. Pearce; Aug. 22, 1918. Capt. H. R. Coningsby; Oct. 25, 1918. (P.) Capt. E. W. T. Beck, D.S.O., M.C.; Dec. 10, 1918.

Staff Officers, 3rd Class (graded for purposes of pay at Air Ministry rates).—Capt. E. E. W. Butt; Oct. 28, 1918.

Staff Officers, 3rd Class.—(Q.) Capt. G. Palmer; Dec. 21, 1918.

Flying Branch.

Cpts. to be actg. Maj. while employed as Maj. (A.):—R. M. Drummond, D.S.O., M.C.; Sept. 2, 1918. A. E. Godfrey, M.C.; Sept. 23, 1918.

Capt. (actg. Maj.) E. O. Grenfell, M.C., to be Capt. (A.), from (S.O.), and relinquishes the actg. rank of Maj.; Dec. 21, 1918.

Cpts. to be graded for pay as Cpts. while employed as Cpts. (A.):—J. F. Roche; Nov. 5, 1918. B. J. W. Brady, D.S.M.; Dec. 20, 1918.

Lieuts. to be Lieuts. (A.), from (O.):—E. R. Lickfold; May 25, 1918 (substituted for notification in *Gazette* Aug. 3, 1918, concerning E. E. Lickfold). A. V. Farrier; Aug. 14, 1918. G. Dania; Sept. 26, 1918 (substituted for notification in *Gazette* Oct. 15, 1918). F. C. Farrington; Sept. 28, 1918 (substituted for notification in *Gazette* Oct. 15, 1918). F. C. Lyall. Nov. 6, 1918 (substituted for notification in *Gazette* Nov. 29, 1918). L. H. McKay; Nov. 17, 1918 (substituted for notification in *Gazette* Dec. 10, 1918).

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lieuts. (A.):—J. C. Fraser; June 27, 1918. H. T. McKinnie; July 23, 1918. J. Jackson; July 24, 1918. G. Smith; July 27, 1918 (since killed).

Prob. Flt. Officer G. A. Elliot (late R.N.A.S.) is granted a temp. commn. as Sec. Lieut. (A.); Sept. 30, 1918 (substituted for notification in *Gazette* Nov. 1, 1918).

F. H. Ryder (Lieut., New Brunswick R., C.E.F.) is granted a temp. commn. as Sec. Lieut. (A.), and to be Hon. Lieut.; Aug. 17, 1918 (substituted for notification in *Gazette* Sept. 13, 1918, concerning F. H. Ryder (Lieut., British Col. R.)).

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lieuts. (O.):—J. W. Benton; May 29, 1918 (substituted for notification in the *Gazette* of Nov. 12, 1918). R. J. Broad; June 21, 1918.

The following are granted temp. commns. as Sec. Lieuts. (O.):—H. T. G. Robey (Temp. Sec., attd. K.O.S.B.); May 11, 1918. N. W. Walmsley (Temp. Lieut., Lan. Fus.), and to be Hon. Lieut.; May 15, 1918 (substituted for notification in the *Gazette* of July 30, 1918, p. 9013). L. Wilmot-Johnson (Temp. Capt., Suff. R.), and to be Hon. Capt.; May 25, 1918). H. B. Barwise (Temp. Sec. Lieut., R.G.A.); Sept. 13, 1918. V. Ross (Temp. Sec. Lieut., R.E.); Oct. 4, 1918. J. A. Bell (Temp. Sec. Lieut., attd. Northd. Fus.). H. G. B. Booth (Temp. Sec. Lieut., Northd. Fus.), J. A. Callaghan (Sec. Lieut., N. Lan. R., T.F.); A. J. Gwynn (Sec. Lieut., W. Yorks R., S.R.), E. J. Price (Sec. Lieut., N. Lan. R., T.F.); Nov. 9, 1918. E. H. Whitmore (Sec. Lieut., N. Staff. R., T.F.); Nov. 17, 1918.

The following Flt. Cds. are granted temp. commns. as Sec. Lieuts. (O.) (substituted for notification in *Gazette* Dec. 10, 1918):—1534 G. G. Dow, 110936 A. W. Glover, 236755 W. A. Vallance; Nov. 27, 1918.

Prob. Flt. Officer K. P. Kirkwood (late R.N.A.S.) is granted a temp. commn. as Sec. Lieut. (S.); July 12, 1918.

Sec. Lieut. (Hon. Lieut.) H. C. Heintzman (Lieut., Can. F.A.) relinquishes his commn. on ceasing to be employed; Dec. 30, 1918.

Capt. (actg. Maj.) E. Henty relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Maj.; Jan. 8.

The following relinquish their commns. on account of ill-health, and are permitted to retain the rank of Capt.:—Capt. W. A. Daniell (contracted on active service), Lieut. (actg. Capt.) E. T. Morrow, D.F.C. (caused by wounds); Jan. 8.

The following Lieuts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—T. E. Carley, C. Kennard, D. J. M. Miller, A. K. Prentice, E. J. Stockman, D. J. W. Walker, P. J. Williams, G. A. Wood; Jan. 8.

The following Lieuts. relinquish their commns. on account of ill-health, caused by wounds, and are permitted to retain their rank:—A. J. S. Doble, W. G. Duthie, E. B. Smyth; Jan. 8.

The following Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—T. V. Brake, C. K. Crocker, E. F. Driver, G. A. Forrest; Jan. 8.

Lieut. O. V. St. J. Williams (Shrops. Yeo., T.F.) relinquishes his commn. on account of ill-health; Jan. 8.

The following Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—R. R. Bragg, A. Camp, S. Castle-Smith (contracted on active service), H. Draper, R. H. French, H. Hitchon, J. A. Payne, A. Reid, W. W. Routledge (contracted on active service), J. W. Taylor, C. F. H. Thruscutt; Jan. 8.

Sec. Lieut. A. C. Simmons (Devon R., S.R.) relinquishes his commn. on account of ill-health; Jan. 8.

The following Officers are antedated in their appointments as Sec. Lieuts. (A. and S.) with effect from the dates stated:—A. J. Girardot; April 21, 1918. H. A. McGrath; Aug. 1, 1918.

The notification in *Gazette* Sept. 6, 1918, concerning Lieut. J. Jackson is cancelled.

The notification in *Gazette* Nov. 26, 1918, concerning T. R. Nichols is cancelled.

The notification in *Gazette* Nov. 26, 1918, concerning J. Macintosh is cancelled.

The notification in *Gazette* Nov. 26, 1918, concerning H. A. Campbell is cancelled.

The notification in *Gazette* Nov. 29, 1918, concerning J. Ferguson is cancelled.

The notification in *Gazette* Dec. 13, 1918, concerning A. B. Richardson is cancelled.

The notification in *Gazette* Nov. 29, 1918, concerning G. Cockburn is cancelled.

The surname of J. R. Fairman is as now described, and not as in *Gazette* Dec. 17, 1918.

The surname of T. V. Smyter is as now described, and not as in *Gazette* Dec. 17, 1918.

The surname of F. G. Aplin is as now described, and not as in *Gazette* May 17, 1918.

The surname of H. B. Mercier is as now described, and not as in *Gazette* Sept. 13, 1918.

The notification in *Gazette* Oct. 11, 1918, concerning Lieut. J. W. New is cancelled.

The notification in *Gazette* Oct. 15, 1918, concerning V. Rose is cancelled.

The notification in *Gazette* Nov. 8, 1918, concerning W. D. Blatch is cancelled.

The notification in *Gazette* Aug. 23, 1918, concerning K. P. Phillips is cancelled.

The surname of E. Charge is as now described, and not as in *Gazette* Nov. 19, 1918.

The notification in *Gazette* Dec. 10, 1918, concerning G. Brownrigg is cancelled.

The surname of Sec. Lieut. F. A. Downes is as now described, and not Downer, as in *Gazette* Nov. 29, 1918.

The notification in *Gazette* Dec. 24, 1918, concerning Sec. Lieut. F. W. Dunnett, M.C., is cancelled.

Administrative Branch.

Maj. L. L. Greig, M.V.O., to be graded for purposes of pay as S.O. 2 (1st Grade); June 1, 1918.

H. Ellershaw (Maj., Manch. R.) is granted a temp. commn. as Maj.; Sept. 14, 1918, seniority April 1, 1918, and to be graded for purposes of pay as S.O. 2 (1st Grade).

The following are granted temp. commns. as Cpts., seniority April 1, 1918:—C. W. Curd (Temp. Capt., Gen. List); June 24, 1918. E. A. Taylor (Temp. Capt., Gen. List); Aug. 28, 1918. J. E. Morris (Capt., Welsh R., T.F.); Nov. 11, 1918.

Lieut. (actg. Capt.) J. A. Stevenson, M.C., retains his actg. rank whilst employed as Capt., from (K.B.), and to be graded for purposes of pay as S.O. 2; Nov. 30, 1918.

To be actg. Cpts. whilst employed as Cpts., and graded for purposes of pay as S.O. 3:—Lieut. J. W. D. Farrell, from (A.); Nov. 30, 1918. Sec. Lieut. (Hon. Lieut.) L. P. Venner, from (K.B.); Dec. 1, 1918.

Lieut. (actg. Capt.) L. H. Seccombe to be graded for purposes of pay as Capt.; Aug. 19, 1918.

Lieuts. to be actg. Cpts. whilst employed as Cpts.:—L. E. Cording, M.C.; June 1, 1918. A. E. Burrows; July 1, 1918. W. A. Dewhurst; Aug. 1, 1918. A. D. Carey; Sept. 3, 1918. G. Southern; Oct. 20, 1918. L. V. Boxer; Nov. 1, 1918. H. N. E. Row, from (A.); Nov. 4, 1918.

Sec. Lieuts. (T.) to be actg. Cpts. while employed as Cpts.:—R. J. Bright; Nov. 17, 1918. R. R. Trout; Nov. 19, 1918.

Sec. Lieut. C. W. Braddy to be actg. Capt. (with pay and allowances of Lieut.) while employed as Capt.; Aug. 28, 1918.

C. G. Darwin, M.C. (Lieut., R.E.) is granted a temp. commn. as Lieut., with seniority from April 1, 1918, and to be actg. Capt. while employed as Capt.; July 8, 1918.

Lieuts. (A.) to be Lieuts.:—V. F. Long; Sept. 16, 1918. R. G. Smith; Sept. 30, 1918. J. Metcalfe; Oct. 8, 1918. J. A. Stedman; Oct. 28, 1918. L. W. Elledge, G. Rainbow; Oct. 31, 1918. H. E. Startin; Nov. 11, 1918. (Hon. Capt.) A. C. Chibnall; Nov. 20, 1918. R. M. Chiswell; Nov. 25, 1918. J. T. Denman; Nov. 26, 1918. R. G. Smith; Dec. 3, 1918. C. B. Stenning; Dec. 23, 1918.

Lieut. J. Powell to be Lieut., from (K.B.); Oct. 29, 1918.

Lieuts. (O.) to be Lieuts.:—J. D. D. Renfrew; Oct. 9, 1918. L. H. Phelps; Oct. 29, 1918. R. G. Green; Nov. 1, 1918. J. F. Gibson; Nov. 20, 1918.

The following are granted temp. commns. as Lieuts., with seniority from April 1, 1918:—R. J. Whitley (Temp. Lieut., R. Suss. R.); May 23, 1918 (substituted for notification in *Gazette* June 4, 1918). H. N. Penlington (Lieut., Worc. R., T.F.); R. Northover (Capt., Lancs. Fus.), and to be Hon. Capt.; June 1, 1918. R. Kane (Qrmer. and Lieut., R. Mar.); Sept. 23, 1918.

I. P. Muller (Temp. Sec. Lieut., R. Fus.) is granted a temp. commn. as Sec. Lieut., seniority April 1, 1918, and to be actg. Lieut. while employed as Lieut.; June 1, 1918.

S. S. Vanderbook (Temp. Sec. Lieut., Glouc. R.) is granted a temp. commn. as Sec. Lieut.; July 10, 1918, seniority April 1, 1918.

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lieuts.:—J. Whittaker; Oct. 1, 1918. F. C. Taylor; Nov. 16, 1918.

Sec. Lieuts. to be Sec. Lieuts., from (A.):—G. E. Shipp; Sept. 16, 1918. O. J. Dear; Sept. 26, 1918. W. E. G. Heanly; Oct. 3, 1918. W. Molineaux; Oct. 30, 1918. E. W. Thomson; Nov. 6, 1918. H. M. Towson; Nov. 29, 1918. L. S. Harvey; Dec. 6, 1918. T. Sykes; Dec. 7, 1918.

Sec. Lieuts. to be Sec. Lieuts.:—MacD. Goodall, from (T.); Nov. 18, 1918. H. B. Elbourne, from (O.); Dec. 30, 1918.

Maj. C. A. Walker-Leigh (T.F. Res.) relinquishes his commn. on account of ill-health; Jan. 8.

Capt. A. L. Edwards resigns his commn.; Jan. 8. Sec. Lieut. (Hon. Capt.) A. Cleave relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt.; Jan. 8.

Lieut. (actg. Capt.) D. I. V. Gatty (R.G.A., S.R.) relinquishes his commn. on account of ill-health contracted on active service; Jan. 8.

The following Lieuts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—A. W. Coulson, C. R. Lamrock; Jan. 8.

Sec. Lieut. A. H. Ross is transferred to unemployed list; Jan. 1.

The following Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. H. Brown (caused by wounds), C. J. Hellett, J. E. Lewis, S. S. Russell (contracted on active service), H. J. Selley, R. H. Storey, W. P. Strank; Jan. 8.

Sec. Lieut. J. B. Coutts resigns his commn.; Jan. 8.

The date of appointment of actg. Capt. J. D. Lyons is Sept. 7, 1918, and not as in *Gazette* Nov. 1, 1918.

The date of appointment of actg. Capt. R. E. Martin is June 27, 1918, and not as in *Gazette* Nov. 29, 1918.

Technical Branch.

Lieut. (actg. Capt.) C. A. Doherty to be actg. Maj. whilst employed as Maj.; Oct. 30, 1918.

The following Temp. Lieuts. (R.N.V.R.) are granted temp. commns. as Capt. (Grade A); Aug. 15, 1918, and with seniority from April 1, 1918:—A. J. Prince-Cox, H. F. Jackson, E. W. Barlow (substituted for notifications in *Gazette* Sept. 13, 1918).

Lieuts. to be actg. Capt. whilst employed as Capt. (Grade A):—H. Jones; July 27, 1918. L. F. Peaty; Nov. 1, 1918.

Lieut. C. A. Hoy, M.C., to be actg. Capt. whilst employed as Capt. (Grade B); Oct. 25, 1918.

Sec. Lieuts. to be actg. Capt. whilst employed as Capt. (Grade A):—(Hon. Capt.) A. D. Allen, B. G. Bryan (actg. Lieut.) A. N. Meier (actg. Lieut.) F. P. Williams; Nov. 1, 1918.

Lieut. C. B. D. Campbell to be Lieut. (Grade B), from (Ad.); Sept. 16, 1918 (substituted for notification in *Gazette* Oct. 29, 1918).

Sec. Lieut. (actg. Lieut.) C. W. Grey to be Sec. Lieut. (Grade A), and to retain his actg. rank of Lieut. whilst specially employed; Nov. 13, 1918 (substituted for notification in *Gazette* Dec. 13, 1918).

Lieuts. to be Lieuts. (Grade B):—L. E. Porter, from (O.); July 15, 1918. L. H. Chamberlain, from (K.B.); Oct. 4, 1918. R. B. Bond, from (Ad.); Nov. 18, 1918.

Sec. Lieut. (Hon. Capt.) H. M. Eldridge to be actg. Lieut. whilst employed as Lieut. (Grade A); Nov. 1, 1918.

Sec. Lieut. W. Renshaw to be actg. Lieut. whilst employed as Lieut.; Nov. 5, 1918.

S. W. Bryant (Lieut., S.R.E.S.) is granted a temp. commn. as Lieut.; Nov. 11, 1918, with seniority from April 1, 1918.

Sec. Lieuts. to be Sec. Lieuts. (Grade A), from (Ad.):—J. Calderwood; Nov. 10, 1918. A. J. Bull, L. E. S. Barrett; Nov. 16, 1918. J. M. England, L. A. Parker, N. R. Rice; Nov. 30, 1918. F. H. Lake; Dec. 9, 1918. C. White; Dec. 12, 1918.

The following are granted temp. commns. as Sec. Lieuts. (Grade A):—J. R. Gardiner (Sec. Lieut., Gen. List), H. Parker (Sec. Lieut., Gen. List); May 1, 1918.

Sec. Lieuts. (A.) to be Sec. Lieuts. (Grade B):—C. A. Pierpoint; Sept. 16, 1918 (substituted for notification in *Gazette* Oct. 29, 1918. H. Marsden; Sept. 19, 1918 (substituted for notification in *Gazette* Nov. 12, 1918. W. Pollard; Nov. 18, 1918).

Sec. Lieuts. (Ad.) to be Sec. Lieuts. (Grade B):—J. O. Miles; Sept. 16, 1918 (substituted for notification in *Gazette* Oct. 29, 1918. I. G. Bethwaite; Oct. 4, 1918. H. G. Gasson; Nov. 6, 1918. H. R. White, J. MacPherson, H. Miller; Nov. 16, 1918. F. S. Willsie; Nov. 21, 1918 (substituted for notification in *Gazette* Dec. 13, 1918). A. T. Taylor; Dec. 4, 1918.

Sec. Lieut. (Hon. Lieut.) (actg. Capt.) C. M. Hennell relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt.; Dec. 11, 1918 (substituted for notification in *Gazette* Dec. 10, 1918).

Capt. (Hon. Maj.) G. De L. Woolridge is transferred to unemployed list; Jan. 1.

Capt. E. A. Hoghton relinquishes his commn. on account of ill-health, and is permitted to retain his rank; Jan. 8.

Lieut. (actg. Capt.) J. Wingate resigns his commn. to resume his medical studies, and is permitted to retain the rank of Lieut.; Jan. 8.

Lieut. H. J. G. Dyer relinquishes his commn. on account of ill-health, and is permitted to retain his rank; Jan. 8.

Lieut. (actg. Capt.) W. T. Taylor (Capt., N. Lanc. R.) relinquishes his commn. on account of ill-health contracted on active service; Jan. 8.

The following Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—C. H. J. Evershed, H. Gray, A. Hill, J. A. Rennie, C. W. Tuck, C. D. Watt; Jan. 8.

The surname of Sec. Lieut. A. P. Johnston is as now described, and not Johnstone, as stated in *Gazette* Nov. 5, 1918.

The notification in *Gazette* Nov. 12, 1918, concerning Sec. Lieut. P. S. Beaufort is cancelled.

The notification in *Gazette* Dec. 24, 1918, concerning the following Sec. Lieuts. are cancelled:—H. G. Hawkes, N. F. S. Hecht, J. L. Tait.

Gymnastic Staff.

Capt. B. T. Metcalfe to be actg. Maj. while employed as Maj., and to be graded for purposes of pay as S.O. 2 (1st Grade); June 1, 1918.

F. G. Sherriff (Capt., York and Lanc. R.) is granted a temp. commn. as Capt., seniority April 1, 1918, and to be actg. Maj. while employed as Supt. of Gymnasia; June 1, 1918, and graded for purposes of pay as S.O. 2 (2nd Grade).

Lieuts. (actg. Capt.) to be actg. Maj. while employed as Area Supts. of Gymnasia:—T. Knowles, F. K. Moncur; June 1, 1918.

Medical Branch.

C. E. C. Stanford (Surg. Cdr., R.N.) is granted a temp. commn. as Lieut.-Col.; Oct. 1, 1918, seniority April 1, 1918.

J. L. Birley (Temp. Maj.) actg. Lieut.-Col., R.A.M.C., is granted a temp. commn. as Major; Oct. 1, 1918, seniority April 1, 1918.

Maj. J. L. Birley to be actg. Lieut.-Col. while employed as Lieut.-Col.; Oct. 1, 1918, seniority May 28, 1918.

The following are granted temp. commns. as Maj.; Oct. 1, 1918, seniority April 1, 1918:—W. W. Shorten (Capt. (actg. Maj.), R.A.M.C.), F. H. Stephens (Staff Surg., R.N.), A. V. J. Richardson (Staff Surg., R.N.), T. J. Kelly, M.C. (Capt. (actg. Maj.), R.A.M.C.), H. H. Robinson, M.C. (Capt. (actg. Maj.), R.A.M.C., T.F.).

The following are granted temp. commns. as Capt., and to be actg. Maj. whilst specially employed; Oct. 1, 1918:—M. N. Perrin (Temp. Capt. (actg. Maj.), R.A.M.C.), with seniority from June 24, 1918. J. H. Porter, M.C. (Temp. Capt. (actg. Maj.), R.A.M.C.), with seniority from June 27, 1918.

The following are granted temp. commns. as Capt. (Oct. 1, 1918, with seniority from April 1, 1918):—C. F. A. Hereford (Surg. Lieut., R.N.V.R.); T. B. Dixon (Surg. Lieut., R.N.V.R.); W. A. S. Duck (Surg. Lieut., R.N.); F. B. Gillespy (Temp. Surg. Lieut., R.N.); D. Ross (Temp. Surg. Lieut., R.N.); R. W. Meller (Temp. Surg. Lieut., R.N.); A. L. Dykes (Temp. Surg. Lieut., R.N.); d'A. Power, M.C. (Capt., R.A.M.C., S.R.); J. H. Owen (Capt., R.A.M.C.); A. Sutcliffe (Capt., R.A.M.C., T.F.); J. M. Wyatt (Capt., R.A.M.C., T.F.); F. A. Hampton, M.C. (Temp. Capt., R.A.M.C.); L. S. Goss (Temp. Surg. Lieut., R.N.); N. C. Graham, M.C. (Temp. Capt., R.A.M.C.); A. G. H. Smart (Temp. Capt., R.A.M.C.); L. W. Shelley (Temp. Capt., R.A.M.C.); C. P. Sells, M.C. (Capt., R.A.M.C., T.F.); E. W. Craig, M.C. (Temp. Capt., R.A.M.C.); W. J. McKeand (Temp. Capt., R.A.M.C.); A. G. H. Moore (Temp. Capt., R.A.M.C.); R. B. Adams (Temp. Surg. Lieut., R.N.); W. S. T. Connell (Temp. Capt., R.A.M.C.); J. Freeman (Temp. Capt., R.A.M.C.); G. Cranston (Temp. Capt., R.A.M.C.); W. Waugh (Temp. Capt., R.A.M.C.); D. S. Stevenson (Temp. Surg. Lieut., R.N.); C. F. Graves (Temp. Capt., R.A.M.C.); J. H. M. Sandison (Temp. Surg. Lieut., R.N.); R. MacLean (Temp. Surg. Lieut., R.N.); D. H. Fraser, M.C. (Temp. Capt., R.A.M.C.); W. H. Cam (Temp. Capt., R.A.M.C.); J. W. Keay (Capt., R.A.M.C., T.F.); A. D. Kennedy (Capt., R.A.M.C., T.F.); J. E. Lascelles (Capt., R.A.M.C., T.F.); C. H. Thompson (Temp. Capt., R.A.M.C.); J. E. Dunbar (Capt., R.A.M.C., T.F.); V. T. Ellwood (Capt., R.A.M.C., T.F.); J. H. Cooke (Temp. Capt., R.A.M.C.); P. H. Young (Temp. Capt., R.A.M.C.);

J. Chambre (Temp. Capt., R.A.M.C.); T. N. Wiltew (Temp. Capt., R.A.M.C.); D. A. Macpherson (Surg. Lieut., R.N.V.R.); A. Leitch (Capt., R.A.M.C.) (substituted for notification in *Gazette* Nov. 26, 1918).

The following are granted temp. commns. as Capt.; Oct. 1, 1918:—C. K. Attlee (Temp. Capt., R.A.M.C.), with seniority from April 27, 1918. C. W. W. James (Temp. Capt., R.A.M.C.), with seniority from Aug. 25, 1918.

W. B. Dove (Temp. Capt., R.A.M.C.) is granted a temp. commn. as Capt.; Oct. 1, 1918.

G. D. M. Beaton (Temp. Lieut., R.A.M.C.) is granted a temp. commn. as Lieut.; Oct. 1, 1918, seniority April 1, 1918.

Medical (Administrative).

E. Haynes, D.C.M. (Capt. and Qmr., R.A.M.C.) is granted a temp. commn. as Capt.; Oct. 1, 1918, seniority April 1, 1918.

Dental Branch.

The following are granted temp. commns. as Capt. (Oct. 1, 1918, seniority April 1, 1918):—J. Barratt (Temp. Capt., Gen. List, Dental Surg.); G. Dawson (Temp. Dental Surg. Lieut., R.N.V.R.).

L. S. Woodiwis (Temp. Dental Surg. Lieut., R.N.V.R.) is granted a temp. commn. as Capt.; Oct. 1, 1918, seniority April 10, 1918.

Chaplains' Branch.

Rev. H. D. L. Viener, M.A. (Chap., R.N.), to be Chaplain-in-Chief, with the relative rank of Brig.-Gen.; Oct. 11, 1918.

Memoranda.

Lieut.-Gen. Sir D. Henderson, K.C.B., D.S.O., is granted the hon. rank of Lieut.-Gen.; Jan. 1.

G. Palmer (Capt. and Qmr., Dev. R.) is granted a temp. commn. as Capt.; June 22, 1918, seniority April 1, 1918.

L. A. W. Merchant is granted the hon. rank of Capt.; Oct. 25, 1918.

Sec. Lieut. S. G. Lewis to be Hon. Lieut.

Sec. Lieut. D. G. Fraser to take rank and prec. as if his appointment as Sec. Lieut. bore date Oct. 3, 1918.

Hon. Capt. W. E. Guttentag relinquishes his commn. on ceasing to be employed, and is permitted to retain the rank of Hon. Lieut.; Dec. 12, 1918.

The following Capt. are transferred to the unemployed list:—(Actg. Maj.) S. R. Axford, A. J. Dawson, from (S.O.), W. J. Salaman, from (S.O.); Jan. 1.

London Gazette, January 10.

The following temporary appointments are made:—

Colonel (Staff).—Lieut.-Col. (actg. Col.) A. C. H. MacLean, and to retain his actg. rank while so employed; Aug. 1, 1918, to Dec. 6, 1918.

Staff Officers, 2nd Class (Higher Grade).—And to be actg. Maj. while so employed, if not already holding that rank:—(P.) Lieut. (actg. Capt.) L. Tunks; Aug. 24, 1918. Maj. D. Illingworth; Dec. 13, 1918. Maj. A. P. Pargiter, M.C.; Dec. 24, 1918. Capt. (actg. Maj.) E. H. C. Bald, M.C.; Jan. 3. (Q.) Capt. G. H. L. Sweet, Capt. F. J. Wise; Aug. 24, 1918.

Staff Officers, 3rd Class.—And to be actg. Capt. while so employed:—(Air.)—G. R. Westmacott, D.S.O. (Lieut., G. Gds.), and is granted a temp. commn. as Lieut.; July 11, 1918, to Dec. 14, 1918. Lieut. C. B. Godfrey; Aug. 24, 1918. (P.) Sec. Lieut. (Hon. Lieut.) E. F. Colman; Aug. 24, 1918. (T.) Lieut. A. Graham; Aug. 24, 1918.

Flying Branch.

Lieut.-Col. C. R. J. Randall to be actg. Col. whilst employed as Col. (A.); Oct. 24, 1918.

Lieuts. to be Lieuts. (A.) from (O.):—(Hon. Capt.) C. M. Manson; Oct. 16, 1918. C. F. Straughan; Oct. 25, 1918. R. C. Mitchell, L. A. G. Dalziel; Oct. 28, 1918.

Lieut. C. Unbehau to be Lieut. (O.), from (A.); Sept. 25, 1918.

Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lieuts. (A.):—W. N. A. Roberts; June 11, 1918. R. D. Clerk; June 12, 1918. R. H. Craig, J. H. M. Woods; Sept. 25, 1918.

The following are granted temp. commns. as Sec. Lieuts. (A.):—F. H. Humphrys (Maj., Ind. Pol. Ser.), and to be Hon. Maj.; April 1, 1918. E. M. Matthew; July 16, 1918.

H. B. C. Nicholls (Lieut., E. Surr. R., T.F.), and to be Hon. Lieut.; Oct. 23, 1918. A. F. Moyle (Temp. Lieut., North'n. R.), and to be Hon. Lieut.; S. A. Packman (Lieut., R.F.A.), and to be Hon. Lieut.; Oct. 25, 1918.

K. Wiggins (Sec. Lieut., Hamps. R., S.R., attd. S.W. Bord R.); Oct. 27, 1918. C. E. Bowden (Capt., D. of Corn. L.I., T.F.), and to be Hon. Capt.; Oct. 29, 1918. E. F. Briggs (Temp. Sec. Lieut., R.F.A.); Oct. 30, 1918.

Sec. Lieut. V. H. Newson (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lieut. (Obs. Officer); Aug. 10, 1918.

Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lieuts. (Obs. Officers) (substituted for notification on p. 14708 of *Gazette*, Dec. 13, 1918). F. B. Cox, C. Thomas; July 14, 1918.

The following are granted temp. commns. as Sec. Lieut. (Obs. Officers): W. Willmer (Lieut., R. Scots, T.F.), and to be Hon. Lieut.; R. M. C. Vaughan (Lieut., R. Dub. Fus., S.R.), and to be Hon. Lieut.; Sept. 25, 1918. H. Mercer, M.C. (Temp. Sec. Lieut., Devon R.); N. Greenslade, M.C. (Temp. Capt., Devon R.), and to be Hon. Capt.; Oct. 18, 1918. C. H. Harwood (Temp. Sec. Lieut., Notts. and Derby R.); Oct. 19, 1918.

The following Flt. Cds. are granted temp. commns. as Sec. Lieuts. (Obs. Officers) (substituted for notification in the *Gazette* of Dec. 10, 1918):—177447 T. B. Williams, 47978 C. C. Rollason, 177725 G. J. Sansum, 29678 J. Mitchinson; Nov. 13, 1918. 177403 S. W. Cobb, 178724 P. Rockley, 179083 W. M. Smith, 177310 T. H. Southern, 177572 A. H. Sient; Nov. 18, 1918. 271036 R. W. Charlton, 177273 R. Harris; Nov. 21, 1918.

The following are transfd. to unemployed list:—Sec. Lieut. A. W. G. Luke, Sec. Lieut. J. R. Woods; Dec. 29, 1918. Lieut. E. W. Harber; Dec. 30, 1918. Lieut. S. A. Odell; Jan. 1. Lieut. (Hon. Capt.) O. C. W. Johnson (Capt., R.F.A.), Lieut. G. F. Webb; Jan. 2.

Capt. (actg. Maj.) J. Forgan-Potts relinquishes his commn. on account of ill-health contracted on active service, and retains the rank of Maj.; Jan. 11.

Lieut. (actg. Capt.) G. A. Harrison relinquishes his commn. on account of ill-health contracted on active service, and retains the rank of Capt.; Jan. 11.

Lieut. (actg. Capt.) H. Briggs, D.F.C., relinquishes his commn. on ceasing to be employed, and retains the rank of Lieut.; Jan. 11.

Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—W. F. Hiam (contracted on active service), T. J. Knight, J. C. O. Nelson (contracted on active service), B. G. Nicholson, P. F. Paton (contracted on active service), G. E. Reffell (contracted on active service), A. Slack, W. C. Tadgell (contracted on active service), E. E. Wallace, (contracted on active service); Jan. 11.

Lieut. L. D. Hammond (High. L.I., T.F.) relinquishes his commn. on account of ill-health contracted on active service; Jan. 11.

Lieut. G. W. Lecomber (Lieut., R.W. Fus.) relinquishes his commn. on account of ill-health; Jan. 11.

Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—E. Barrett, F. Binns, H. J. Boyle, R. G. Hamilton, J. Levy, H. A. Lye, J. T. Potts (contracted on active service); Jan. 11.

Sec. Lieut. R. M. Herbert relinquishes his commn. on ceasing to be employed and retains his rank; Jan. 11.

Sec. Lieut. S. J. Griffin relinquishes his commn., and retains his rank; Jan. 11.

Sec. Lieut. E. B. Flanagan resigns his commn.; Jan. 11th.

The following Officers are antedated in their appointments as Sec. Lieuts. (A. and S.), with effect from the dates stated:—B. W. Hopkins; April 26, 1918. N. E. Lashbrook; May 10, 1918.

The following Officers are antedated in their appointments as Obs. Officers, with effect from the dates stated:—H. Rapier; May 15, 1918. F. L. Wolf; June 6, 1918.

The surname of Flt. Cadet D. B. Halley is as now described, and not as stated in *Gazette* July 19, 1918.

The Christian names of Flt. Cdt. John Purvis Gibb are as now described, and not as stated in *Gazette* Nov. 22, 1918.

The surname of Flt. Cdt. W. H. Stiles is as now described, and not as stated in *Gazette* Dec. 6, 1918.

The notification in *Gazette* Oct. 15, 1918, concerning Flt. Cdt. R. S. Nicholl is cancelled.

The notification in *Gazette* Nov. 12, 1918, concerning Flt. Cdt. W. Leslie is cancelled.

Administrative Branch.

H. W. Stratton (Capt. and Qrmm. (Unatt. List) is granted a temp. commn. as Capt.; Oct. 21, 1918, seniority April 1, 1918, and to be actg. Lieut.-Col. whilst employed as Lieut.-Col.; Oct. 31, 1918.

Capt. J. S. Shaw to be Capt., from (A.); Nov. 26, 1918.

The following are granted temp. commns. as Capts., seniority April 1, 1918:—J. E. Harrison (Capt., Drag. Gds., S.R.); June 1, 1918. G. S. Kilby (Capt., Lond. R., T.F.); Sept. 14, 1918 (substituted for notification in *Gazette* Nov. 19, 1918).

Lieut. J. M. J. C. J. I. Rock to be actg. Capt. whilst employed as Capt.; Oct. 23, 1918.

Lieut. (actg. Capt.) W. A. C. Ricketts to be Lieut., from (S.O.), and relinquishes the actg. rank of Capt.; Nov. 25, 1918.

Lieuts. (A.) to be Lieuts.:—J. M. J. C. J. I. Rock; June 26, 1918. F. R. P. Williams; Oct. 1, 1918. W. T. Jourdan; Oct. 22, 1918. R. E. Coppinger; Nov. 1, 1918. N. M. Smith; Nov. 4, 1918. St. G. C. Payzant; Nov. 5, 1918. R. O. Phillips; Nov. 8, 1918. J. B. Fitzgerald, D. McAlary; Nov. 14, 1918. E. J. Stedman; Nov. 19, 1918. V. W. Hatton; Dec. 2, 1918.

Lieuts. (O.) to be Lieuts.:—H. T. Allman; Oct. 23, 1918. W. H. Steele; Oct. 30, 1918. S. H. Short; Nov. 1, 1918. H. G. L. Fletcher; Nov. 10, 1918.

Lieuts. to be Lieuts.:—S. H. Atherley, from (A. and S.); Nov. 23, 1918. E. M. Smith, from (S.O.); Nov. 26, 1918.

Sec. Lieut. (Hon. Lieut.) R. W. Banks to be actg. Lieut. while specially employed; Sept. 16, 1918.

The following are transferred to unemployed list:—Lieut. B. C. Scott; Dec. 21st, 1918. Capt. C. J. Pike; Dec. 25, 1918. Capt. L. W. David; Dec. 27, 1918. Lieut. (actg. Capt.) H. A. Trier; Jan. 1st. Maj. G. C. Toss-will (Capt., R.D.C., T.F.); Jan. 2. Lieut. H. Spurr (London R., T.F.); Jan. 3. Lieut. Hon. M. Greville; (Jan. 6, and retains the rank of Lieut.); Sec. Lieut. H. Friend; Jan. 11.

The following Lieuts. relinquish their commns. on account of ill-health:—L. S. Hiscott (Temp. Lieut., R.G.A.); C. H. Lawrence (Sec. Lieut., York and Lanc. R.); J. R. Maloney (Lieut., Devon R.) (caused through wounds); Jan. 11.

Sec. Lieut. H. H. Webb resigns his commn. to resume medical studies; Dec. 26, 1918.

Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—E. H. Everitt (contracted on active service), T. S. Hill, K. D. Kayler, S. Wilson; Jan. 11.

The surname of Maj. (actg. Lieut.-Col.) E. C. Mulgrue is as now described and not as stated on p. 14802 of the *Gazette* Dec. 17, 1918.

The notification on p. 12620 of the *Gazette* Oct. 25, 1918, concerning Lieut. W. G. G. Bittles is cancelled.

The notification on p. 15052 of the *Gazette* Dec. 24, 1918, concerning Lieut. (Hon. Capt.) G. Prater is cancelled.

Technical Branch.

Lieut. (Hon. Capt.) R. Godfrey to be Lieut., from (A.); April 1, 1918 (substituted for notification in the *Gazette* Dec. 17, 1918).

Lieuts. to be Lieuts. (Grade A):—C. E. Channing, from (Ad.); Nov. 4, 1918. L. E. Vine, from (A.); Dec. 31, 1918.

Sec. Lieuts. (actg. Lieuts.) retain the actg. rank of Lieut. whilst employed as Lieuts. (Grade A):—J. Mytton, from (Ad.); Dec. 18, 1918. B. S. Higgs, from Grade B; Dec. 24, 1918.

W. B. L. Easton (Lieut., Royal Sco.) is granted a temp. commn. as Lieut. (Grade B); Oct. 7, 1918.

The following are transfd. to unemployed list:—Sec. Lieut. A. C. Middlemas; Dec. 21, 1918. Lieut. A. S. Hordern; Jan. 1.

Lieut. P. Hardy relinquishes his commn. on account of ill-health, and retains his rank; Jan. 11.

Sec. Lieut. E. Noble relinquishes his commn. on account of ill-health, and retains his rank; Jan. 11.

Chaplains' Branch.

E. C. Storr (Temp. Chaplain to the Forces, 4th Class, A.C.D.) is granted a temp. commn. as Chaplain, with the relative rank of Capt.; Dec. 23, 1918.

Memoranda.

Lieut. (actg. Capt.) W. E. Phillips is granted the local rank of Maj. (without pay and allowances of that rank) whilst specially employed; Dec. 23, 1918.

The following are transfd. to unemployed list:—Sec. Lieut. T. A. Cousins (R.F.A., S.R.); Dec. 20, 1918. Capt. (actg. Maj.) A. S. Barmfield, from S.O.; Dec. 23, 1918. Sec. Lieut. R. Davis, and retains his rank; Lieut. (actg. Capt.) F. W. Memory, from S.O.; Lieut. (actg. Capt.) G. S. Steel, from S.O.; Sec. Lieut. (actg. Lieut.) P. D. Stonham; Jan. 1.

Royal Flying Corps (Military Wing).

London Gazette Supplement, January 6.

General List.—Sergt. E. V. Edwards, from Yeo. (since killed), to be Temp. Sec. Lieut.; Feb. 10, 1918.

London Gazette Supplement, January 7.

Flying Officers.—Temp. Sec. Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—S. Kendall; Aug. 4, 1917. R. S. Warwick; March, 16, 1918.

London Gazette Supplement, January 8.

Flying Officers.—The appointment of Temp. Sec. Lieut. H. A. Miller, Gen. List, is antedated to Jan. 16, 1918.

Equipment Officers, 3rd Class.—Sec. Lieut. A. Jukes; Dec. 29, 1917.

Schools of Instruction.—Schools of Military Aeronautics.

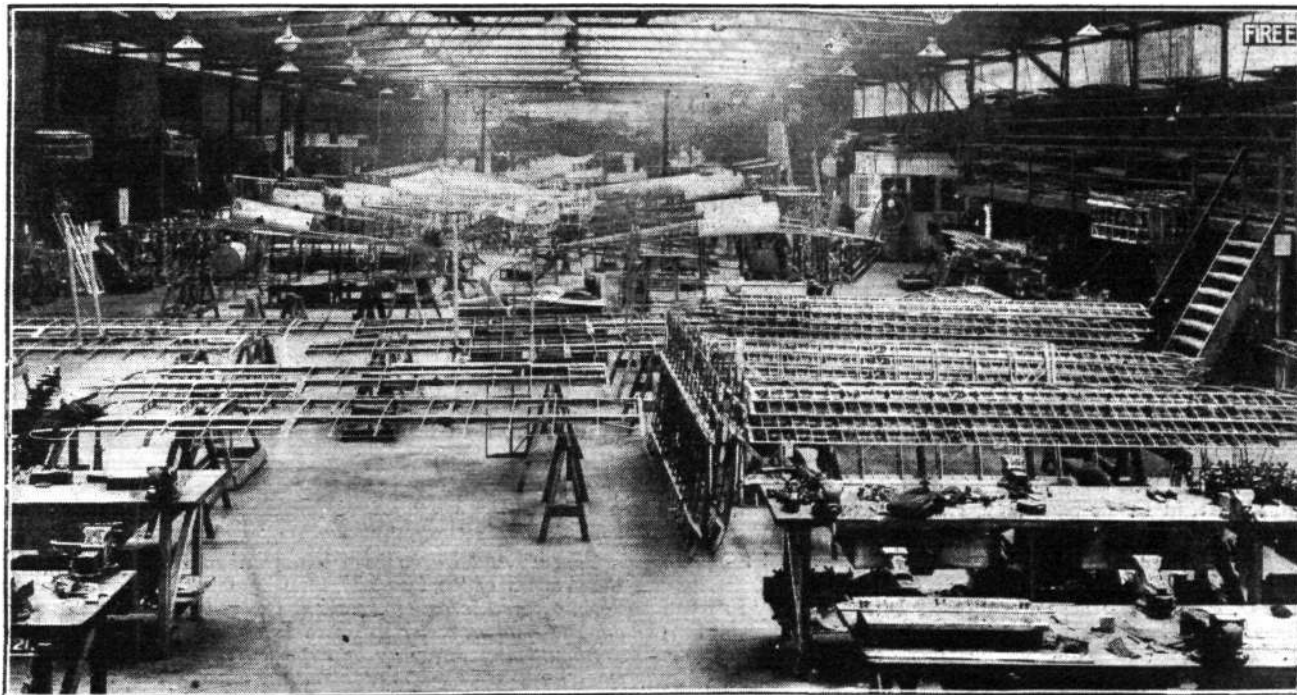
Assistant Instructor.—(Graded as an Equipment Officer, 2nd Class).—Temp. Lieut. A. D. Broughton, Gen. List, relinquishes his appointment on reposting as a Flying Officer; Oct. 5, 1917.

SIDE-WINDS.

WITHOUT detracting in the slightest from the wonderful performance of the Napier "Lion" engine on the De H. (Airco.) machine which achieved the world's height record, of which particulars were given in "FLIGHT" last week, it may be pointed out that Claudel-Hobson carburettors were fitted. It is but the last of a long series of successes in which this carburettor has played a most important part, but the Claudel-Hobson firm, in common with so many other accessory makers, have had to hide their light under a bushel during War time.

ANOTHER effective participant in the record performance was Wakefield "Castrol R" oil, and we are reminded that all British aviation records since 1910 have been effected with the aid of this British lubricant.

To our collection of calendars has now been added a charming one from the Sunbeam Motor Car Co., Ltd., "The Sunbeam of 1919." It is beautifully printed, and bears a pretty picture, in colours, of one of the latest Sunbeams arriving at a country house.



Another suggestive shop at the Ham factory of the Sopwith Aviation Company.

COMPANY MATTERS

The Sunbeam Motor Car Co., Ltd.

THE directors' report for the year ending August 31, 1918, states that the profit for the year, after paying all expenses of management and allowing for depreciation and income tax and after making provision for the estimated amount payable for excess profits duty for the year (but before providing for directors' remuneration) amounts to £94,264 17s. 4d. After adding £97,702 18s. 3d. the balance from last year, and deducting £900 the half-yearly dividend on the preference shares and £12,000 the interim dividend at 5 per cent. (free of tax) on the ordinary shares paid in April, there is a balance of £179,067 15s. 7d., out of which the following appropriations have been made in accordance with the resolution passed at the meeting held on December 20, 1918: Balance of dividend on the preference shares, £900; final dividend of 10 per cent., free of income tax, on the ordinary shares, £24,000; bonus of 1s. per share, free of income tax, on the ordinary shares, £12,000; directors' remuneration (free of income tax), £5,000; leaving a balance of £137,167 15s. 7d. The directors recommend that the sum of £50,000 be placed to reserve (bringing this account up to £270,000) and that the balance of £87,167 15s. 7d. be carried forward.

NEW COMPANIES REGISTERED

AUTO AND AERO SYNDICATE, LTD., 7, Southampton Street, W.C. 1.—Capital £1,000, in £1 shares (499 preference and 501 ordinary). Motor, aeroplane and motor-boat manufacturers, etc. First directors: G. P. Catchpole and J. D. Akehurst.

H.P. ENGINEERING CO., LTD., High Street, Weybridge.—Capital £2,000, in £1 shares. Aeronautical, motor and general engineers, agents, etc. First directors: R. W. H. Phillpott and A. E. Lewer.

GEORGE ENGLAND, LTD., Broad Street House, E.C. 2.—Capital £4,000, in £1 shares (500 preference). Acquiring business carried on at Walton-on-Thames as "George England" of manufacturers of electrical, steam, gas, or other motor vehicles and aircraft; aerodrome, aero school and club, hangar, garage and shed proprietors, etc. First directors G. England and E. C. G. England.

LEWIS ENGINES, LTD., Imperial Buildings, Mount Stuart Square, Cardiff.—Capital £20,000, in £1 shares. Iron-founders, motor and electrical engineers, aeroplane manufacturers, etc. First directors: A. D. Axarlis, T. E. Lewis, F. Lewis, and P. Ascroft.

O. E. LEWIS, LTD., 1, Markhouse Road, Walthamstow.—Capital £100, in £1 shares. Manufacturers of and dealers in machinery and apparatus for use in connection with aeroplanes and aircraft, electrical and mechanical engineers, etc. First directors:—O. E. Lewis, Mrs. H. R. Lewis and F. W. Lewis.

MANCHESTER-LONDON AIR SERVICE, LTD., 42, Deansgate, Manchester.—Capital £35,000, in 34,500 ordinary and 500 deferred shares of £1 each. First directors: H. George, J. B. Watson, J. H. Harvey and J. Tantom. Manager: J. H. Harvey.

PUBLICATIONS RECEIVED.

Oxy-Acetylene Welding of Copper, Brasses and Bronzes. By M. R. Amadio; translated by D. Richardson, Wh. Exh., A.M.I.Mech.E. London: Raggett and Co., 30, Red Lion Square, W.C. 1. Price 2s. 6d. net (postage 3d. extra).

Almanach 1919. The Supermarine Aviation Works, Ltd., Southampton.

"Triplex" London Time-Table and Red Rail-Guide: January 1919. London: The Triplex Safety Glass Co., Ltd., 1, Albemarle Street, W. 1. Price 1s.

Calendar, 1919. Llewellyn Ryland, Ltd., Balsall Heath Works, Birmingham.

Inspiring Messages to the "Financier" on the Future of Industry, Trade and Finance. The Financier, Wool Exchange, Coleman Street, E.C. 2.

Calendar, 1919. The Financier, Wool Exchange, Coleman Street, E.C. 2.

Electrical Ignition. By M. A. Codd. Second Edition. London: E. and F. N. Spon, 57, Haymarket. Price 6s. net (post free 6s. 6d.).

Air Men o' War. By Boyd Cable. London: John Murray, Albemarle Street, W. Price 6s. net.

Calendar, 1919. "Press Cuttings." Illustrated by Lawson Wood. Brown Brothers, Ltd., Great Eastern Street, London, E.C. 2.

V.C.s of the Air. Written by Lieut. Gilbert Barnett, with 16 paintings by Dudley Tennant. London: Ed. J. Burrow and Co., Ltd., 11, Southampton Row, W.C. Price 5s. net.

IMPORTS AND EXPORTS, 1917-1918.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures see "FLIGHT" for January 25th, 1912; for 1912 and 1913, see "FLIGHT" for January 17th, 1914; for 1914, see "FLIGHT" for January 15th, 1915; for 1915, see "FLIGHT" for January 13th, 1916; for 1916, see "FLIGHT" for January 11th, 1917; and for 1917, see "FLIGHT" for January 24th, 1918.

	Imports.		Exports.		Re-Exportation.	
	1917.	1918.	1917.	1918.	1917.	1918.
January ...	10,842	49,402	67,033	24,765	—	—
February ...	9,479	51,941	26,512	13,545	6	—
March ...	11,158	47,930	58,517	11,451	—	1,000
April ...	21,141	33,342	21,151	10,815	—	—
May ...	6,877	942,866	59,713	67,224	—	—
June ...	2,670	864,296	14,647	35,658	—	—
July ...	9,104	1,834,293	106,250	10,800	—	—
August ...	18,680	566,137	68,315	71,503	258	—
September ...	9,047	505,160	56,491	8,033	30	100
October ...	58,086	294,835	73,580	9,166	100	—
November ...	169,574	410,557	75,632	75,811	—	—
December ...	82,646	1,258,322	19,160	53,712	—	—
	409,304	6,859,081	660,980	392,483	394	1,100

Helium Gas for Lighter-than-Air Craft

ADDRESSING a meeting of engineers at New York recently, Major-Gen. G. O. Squier is reported to have said that one of the greatest scientific achievements from the technical standpoint was the production of helium gas for balloons in large quantities. This gas was non-inflammable. Its pre-War scarcity could be appreciated from the statement that up to two years ago not more than 100 cubic feet could be obtained, and the usual selling price was about \$1,700 (about £340) per cubic foot. At the cessation of hostilities they were able to have compressed on the deck of a vessel ready for floating 147,000 cubic feet of pure helium, and the plants under construction would give at least 50,000 cubic feet daily, at an estimated cost of 10 cents (5d.) per cubic foot.

Aeronautical Patents Published

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors.

APPLIED FOR IN 1917

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published January 16, 1919.

14,664. A. A. LEMERCIER. Electrically heated clothing for aviators, etc. (121,495.)

18,366. J. K. MOORE. Propellers for air and water craft. (121,504.)

APPLIED FOR IN 1918

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published January 16, 1919.

3,425. CURTISS MOTOR CO. Flying-boats or hydro-aero machines. (123,964.)

If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages lix, lx, lxi and lxii).

FLIGHT

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